中 国 船 级 社

GD 04.2-2022

CHINA CLASSIFICATION SOCIETY

法定检验实施指南

GUIDELINES FOR IMPLEMENTATION OF STATUTORY SURVEYS

（国际航行船舶　第3部分）

(SHIPS ENGAGED ON INTERNATIONAL VOYAGES PART 3)

2022.06

PART 3 SURVEY GUIDELINES UNDER THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION (HSSC)

Resolution A.1156(32)

Adopted on 15 December 2021
(Agenda item 10)

SURVEY GUIDELINES UNDER THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION (HSSC), 2021

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines regarding maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO the adoption by:

(a) the International Conference on the Harmonized System of Survey and Certification, 1988 of the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 and of the Protocol of 1988 relating to the International Convention on Load Lines, 1966, which, inter alia, introduced the harmonized system of survey and certification into the International Convention for the Safety of Life at Sea, 1974 and the International Convention on Load Lines, 1966, respectively;

(b) resolution MEPC.39(29) of amendments to introduce the harmonized system of survey and certification into the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL);

(c) resolution MEPC.132(53) of amendments to introduce the harmonized system of survey and certification into MARPOL Annex VI;

(d) the International Conference on Ballast Water Management for Ships of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, which included the harmonized system of survey and certification; and

(e) the resolutions given below of amendments to introduce the harmonized system of survey and certification into:

(i) the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) (resolutions MEPC.40(29) and MSC.16(58));

(ii) the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) (resolution MSC.17(58)); and

(iii) the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code) (resolutions MEPC.41(29) and MSC.18(58)),

RECALLING FURTHER resolution A.1140(31), by which it adopted the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2019* (hereafter referred to as the "Survey Guidelines"), following successive revocation of resolutions A.1120(30), A.1104(29), A.1076(28), A.1053(27), A.1020(26), A.997(25), A.948(23) and A.746(18), replacing the guidelines adopted by resolutions A.560(14), MEPC.11(18) and MEPC.25(23),

RECOGNIZING the need for the Survey Guidelines to be further revised to take into account the amendments to the IMO instruments referred to above which have entered into force or become effective since the adoption of resolution A.1140(31),

HAVING CONSIDERED the recommendations made by the Maritime Safety Committee, at its 104th session, and the Marine Environment Protection Committee, at its seventy-seventh session,

1 ADOPTS the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2021*, as set out in the annex to the present resolution;

2 INVITES Governments carrying out surveys required by relevant IMO instruments to apply the provisions of the annexed Survey Guidelines;

3 REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the Survey Guidelines under review and to amend them as necessary;

4 REVOKES resolution A.1140(31).

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SURVEY GUIDELINES UNDER THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION (HSSC), 2021

(These Guidelines take into account relevant IMO mandatory instruments and amendments thereto entering into force before or on 31 December 2021)

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GENERAL

1 INTRODUCTION

1.1 These Guidelines supersede the guidelines adopted by resolution A.1140(31), and take account of the harmonized system of survey and certification in the following instruments:

.1 International Convention for the Safety of Life at Sea, 1974 (1974 SOLAS Convention, or SOLAS 74), as modified by the Protocol of 1988 relating thereto, as amended (SOLAS 74/88);

.2 International Convention on Load Lines, 1966 (1966 LL Convention, or LLC 66), as modified by the Protocol of 1988 relating thereto, as amended (LLC 66/88);

.3 International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997, as amended (MARPOL);

.4 International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, as amended (BWM Convention));

.5 International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, as amended (IBC Code);

.6 International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, as amended (IGC Code);

.7 Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, as amended (BCH Code); and

.8 International Code for Ships Operating in Polar Waters (Polar Code).

1.2 These Guidelines take into account the amendments to statutory instruments which entered into force before or on 31 December 2021 (see appendix 1), and contain the following:

.1 Survey Guidelines under the 1974 SOLAS Convention, as modified by the Protocol of 1988 relating thereto (annex 1);

.2 Survey Guidelines under the 1966 LL Convention, as modified by the Protocol of 1988 relating thereto (annex 2);

.3 Survey Guidelines under the MARPOL Convention (annex 3);

.4 Survey Guidelines under the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (annex 4); and

.5 Survey Guidelines under mandatory codes (annex 5).

1.3 The harmonized system, a diagrammatic arrangement of which is given in appendix 2, provides for:

.1 a one-year standard interval between surveys, based on initial, annual, intermediate, periodical and renewal surveys, as appropriate, except for MARPOL Annex IV, which is based on initial and renewal surveys;

.2 a scheme providing the necessary flexibility to execute each survey, with provision for:

.1 completion of the renewal survey within three months before the expiry date of the existing certificate with no loss of its period of validity; and

.2 a "time window" of six months – from three months before to three months after the anniversary date of the certificate for annual, intermediate and periodical surveys;

.3 items associated with the cargo ship safety construction intermediate survey that are additional to the requirements of the annual survey may, alternatively, be carried out at the second or third annual survey or between these surveys,

.3 in no case does the survey carried out under 1.3.2.3 remove the need to carry out the required annual surveys.

.4 a maximum period of validity of five years for all cargo ship certificates;

.5 a maximum period of validity of 12 months for the Passenger Ship Safety Certificate;

.6 a system for the extension of certificates limited to three months, enabling a ship to complete its voyage, or one month for ships engaged on short voyages;

.7 when an extension has been granted, the period of validity of the new certificate starting from the expiry date of the existing certificate before its extension;

.8 a flexible system for inspection of the outside of the ship's bottom on the following conditions:

.1 a minimum of two inspections during any five-year period of validity of the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate; and

.2 the interval between any two such inspections should not exceed 36 months;

.9 a Cargo Ship Safety Certificate under SOLAS 74/88, as an alternative to separate Cargo Ship Safety Construction, Cargo Ship Safety Equipment and Cargo Ship Safety Radio Certificates; and

.10 a flexible system concerning the frequency and the period of validity of certificates, subject to the minimum pattern of surveys being maintained.

1.4 In implementing the harmonized system, the following principal changes made to the survey and certification requirements of SOLAS 74/88 have been taken into account:

.1 unscheduled inspections are no longer included and annual surveys are mandatory for cargo ships;

.2 intervals between the periodical surveys of equipment covered by the Cargo Ship Safety Equipment Certificate are alternately two and three years instead of two years;

.3 intermediate surveys are required for all ships under the Cargo Ship Safety Construction Certificate;

.4 inspection of the outside of the ship's bottom is required for all cargo ships;

.5 intermediate surveys for the Cargo Ship Safety Construction Certificate are completed within three months of either the second or third anniversary date; items associated with the cargo ship safety construction intermediate survey that are additional to the requirements of the annual survey may, alternatively, be carried out at the second or third annual survey or between these surveys;

.6 all cargo ship certificates may be issued for any period of validity up to and including five years;

.7 there is provision for a Cargo Ship Safety Certificate; and

.8 the extension provisions have been reduced from five months to three months to enable a ship to complete its voyage and the extension for one month for a period of grace is limited to ships engaged on short voyages.

1.5 With regard to LLC 66/88, the principal changes to the requirements for survey and certification are the introduction of similar extension provisions (see 1.4.8) and linking of the period of validity of the new certificate to the expiry date of the previous certificate (see 1.3.6).

1.6 With regard to MARPOL and the IBC, IGC and BCH Codes, the main changes are the linking of the period of validity of the new certificate to the expiry date of the previous certificate (see 1.3.6), the holding of the intermediate survey within three months of the second or third anniversary date and the introduction of the same extension provisions (see 1.4.8).

2 TYPES OF SURVEY

The types of survey used in the harmonized system are as follows:

(I) 2.1 *An initial survey* is a complete inspection before a ship is put into service of all the items relating to a particular certificate, to ensure that the relevant requirements are complied with and that these items are satisfactory for the service for which the ship is intended.

(P) 2.2 *A periodical survey* is an inspection of the items relating to the particular certificate to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.

(R) 2.3 *A renewal survey* is the same as a periodical survey but also leads to the issue of a new certificate.

(In) 2.4 *An intermediate survey* is an inspection of specified items relevant to the particular certificate to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.

(A) 2.5 *An annual survey* is a general inspection of the items relating to the particular certificate to ensure that they have been maintained and remain satisfactory for the service for which the ship is intended.

(B) 2.6 *An inspection of the outside of the ship's bottom* is an inspection of the underwater part of the ship and related items to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.

(Ad) 2.7 *An additional survey* is an inspection, either general or partial according to the circumstances, to be made after:

.1 a repair resulting from investigations or whenever any important repairs or renewals are made; or,

.2 change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material (BWM Convention regulation E-1.1.5).

2.8 List of types of survey in conventions and codes

(I) 2.8.1 *Initial surveys*

SOLAS 74/88 regulations I/7(a)(i) and 7(b)(i)
regulations I/8(a)(i) and 8(b)(i)
regulations I/9(a)(i) and 9(b)(i)
regulations I/10(a)(i) and 10(b)(i)
LLC 66/88 article 14(1)(a)
MARPOL Annex I regulation 6.1.1
MARPOL Annex II regulation 8.1.1
MARPOL Annex IV regulation 4.1.1
MARPOL Annex VI regulation 5.1.1
BWM Convention regulation E-1.1.1
IBC Code regulation 1.5.2.1.1
IGC Code regulation 1.4.2.1
BCH Code regulation 1.6.2.1.1

(P) 2.8.2 *Periodical surveys*

SOLAS 74/88 regulations I/8(a)(iii) and 8(b)(ii)
regulations I/9(a)(iii) and 9(b)(ii)

(R) 2.8.3 *Renewal surveys*

SOLAS 74/88 regulations I/7(a)(ii) and 7(b)(ii)
regulations I/8(a)(ii) and 8(b)(ii)
regulations I/9(a)(ii) and 9(b)(ii)
regulations I/10(a)(ii) and 10(b)(ii)

LLC 66/88 article 14(1)(b)
MARPOL Annex I regulation 6.1.2
MARPOL Annex II regulation 8.1.2
MARPOL Annex IV regulation 4.1.2
MARPOL Annex VI regulation 5.1.2

BWM Convention regulation E-1.1.2
IBC Code regulation 1.5.2.1.2
IGC Code regulation 1.4.2.2
BCH Code regulation 1.6.2.1.2

(In) 2.8.4 *Intermediate surveys*

SOLAS 74/88 regulations I/10(a)(iii) and 10(b)(iii)
MARPOL Annex I regulation 6.1.3
MARPOL Annex II regulation 8.1.3
MARPOL Annex VI regulation 5.1.3
BWM Convention regulation E-1.1.3
IBC Code regulation 1.5.2.1.3
IGC Code regulation 1.4.2.3
BCH Code regulation 1.6.2.1.3

(A) 2.8.5 *Annual surveys*

SOLAS 74/88 regulations I/8(a)(iv), 8(b)(iii), and10(a)(iv) and 10(b)(iv)
LLC 66/88 article 14(1)(c)
MARPOL Annex I regulation 6.1.4
MARPOL Annex II regulation 8.1.4
MARPOL Annex VI regulation 5.1.4
BWM Convention regulation E-1.1.4
IBC Code regulation 1.5.2.1.4
IGC Code regulation 1.4.2.4
BCH Code regulation 1.6.2.1.4

(B) 2.8.6 *Inspection of the outside of the ship's bottom*

SOLAS 74/88 regulations I/10(a)(v) and 10(b)(v)

(Ad) 2.8.7 *Additional surveys*

SOLAS 74/88 regulations I/7(a)(iii) and 7(b)(iii)
regulation I/8(a)(v)
regulation I/9(a)(iv)
regulation I/10(a)(vi)

MARPOL Annex I regulation 6.1.5
MARPOL Annex II regulation 8.1.5
MARPOL Annex IV regulation 4.1.3
MARPOL Annex VI regulation 5.1.5
BWM Convention regulation E-1.1.5
IBC Code regulation 1.5.2.1.5
IGC Code regulation 1.4.2.5
BCH Code regulation 1.6.2.1.5

3 APPLICATION AND ARRANGEMENT OF THE GUIDELINES

3.1 The Guidelines provide a general framework upon which Administrations will be able to base their arrangements for carrying out surveys. It is recognized that survey provisions contained in the Guidelines are not necessarily applicable to all types and sizes of ship.

3.2 While the Guidelines are intended to cover instruments listed in 1.1, they should be applied, as appropriate, to drilling rigs and other platforms covered by MARPOL Annex I regulation 39 and Annex VI regulation 5.

3.3 A description of the various types of survey is given in section 4 and, as shown on the contents page, this is followed by the detailed requirements for the various surveys for each of the certificates.

3.4 When appropriate, the detailed requirements for the various surveys contain a section that is applicable to all cargo ships followed by a section that only applies to specific ship types.

3.5 While the convention or code references are included, where possible, it should be noted that, in general, it has not been possible to indicate where there are differing requirements dependent upon the ship's year of build. Consequently, care should be taken in applying specific requirements, particularly where there have been amendments that are only applicable to ships built after a certain date.

3.6 Although also part of the requirements for the Cargo Ship Safety Construction Certificate, a separate section is provided for inspection of the outside of the ship's bottom.

3.7 SOLAS 74/88 regulation I/12(v) provides for a Cargo Ship Safety Certificate to be issued as an alternative to the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Construction Certificate and the Cargo Ship Safety Radio Certificate. Consequently, the surveys for the issue and renewal of the Cargo Ship Safety Certificate should be in accordance with the certificates it replaces and, similarly, the annual and intermediate surveys should be the same as those required for the replaced certificates and the appropriate sections of the Cargo Ship Safety Certificate, endorsed accordingly.

3.8 On the left-hand side of each item to be surveyed may be found two or three letters in brackets, the first indicating the certificate to which the survey relates, as follows:

(E) for the Cargo Ship Safety Equipment Certificate;

(C) for the Cargo Ship Safety Construction Certificate;

(R) for the Cargo Ship Safety Radio Certificate;

(L) for the International Load Line Certificate;

(O) for the International Oil Pollution Prevention Certificate;

(N) for the International Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk;

(S) for the International Sewage Pollution Prevention Certificate;

(A) for the International Air Pollution Prevention Certificate;

(D) for the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(G) for the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(P) for the Passenger Ship Safety Certificate;

(W) for the Polar Ship Certificate;

(B) for the International Ballast Water Management Certificate;

and the second and third letters the type of survey, as follows:

(I) for the initial survey;

(A) for the annual survey;

(In) for the intermediate survey;

(P) for the periodical survey;

(R) for the renewal survey;

(B) for inspection of the outside of the ship's bottom; (Ad)

for an additional survey.

Accordingly, "(EI)", "(OIn)" and "(PR)", for example, indicate the initial survey for the Cargo Ship Safety Equipment Certificate, the intermediate survey for the International Oil Pollution Prevention Certificate and the renewal survey for the Passenger Ship Safety Certificate, respectively.

3.9 For the application of these Guidelines, the following guidance on terms used in the survey requirements is provided:

.1 "Examining", except where used in "examining the plans" or "examining the design", should be understood as an examination, using appropriate techniques, of the components, system or appliance in question for satisfactory provision, arrangement and condition and for any signs of defects, deterioration or damage. The extent of this examination shall be adapted by the surveyor considering the type of survey performed (e.g. initial, annual, renewal) and the actual maintenance condition of the ship and its equipment;

.2 "Testing" should be understood as a functional test of the system or appliance in question, to confirm its satisfactory operation and performance for its intended use.

3.10 The amplification of various terms and conditions is given in section 5.

4 DESCRIPTION OF THE VARIOUS TYPES OF SURVEY

(I) 4.1 Initial surveys

4.1.1 Frequency

The initial survey, as required by the relevant regulations (see 2.8.1), should be held before the ship is put in service, or when a new instrument applies to an existing ship, and the appropriate certificate is issued for the first time.

4.1.2 General

4.1.2.1 The initial survey should include a complete inspection, with tests when necessary, of the structure, machinery and equipment to ensure that the requirements relevant to the particular certificate are complied with and that the structure, machinery and equipment are fit for the service for which the ship is intended.

4.1.2.2 The initial survey should consist of:

.1 an examination of the plans, diagrams, specifications, calculations and other technical documentation to verify that the structure, machinery and equipment comply with the requirements relevant to the particular certificate;

.2 an inspection of the structure, machinery and equipment to ensure that the materials, scantlings, construction and arrangements, as appropriate, are in accordance with the approved plans, diagrams, specifications, calculations and other technical documentation and that the workmanship and installation are in all respects satisfactory; and

.3 a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate have been placed on board the ship.

4.1.3 Examination of plans and designs

An application for an initial survey should be accompanied by plans and designs referred to in sections 1, 2, 4 and 5 of annex 1 and in annexes 2, 3, 4 and 5, as appropriate, together with:

.1 the particulars of the ship;

.2 any exemptions sought; and

.3 any special conditions.

(A) 4.2 Annual surveys

4.2.1 Frequency

The annual survey, as required by the relevant regulations (see 2.8.5) and as shown diagrammatically in appendix 2, should be held within three months before or after each anniversary date of the certificate.

4.2.2 General

4.2.2.1 An annual survey should enable the Administration to verify that the condition of the ship, its machinery and equipment is being maintained in accordance with the relevant requirements.

4.2.2.2 In general, the scope of the annual survey should be as follows:

.1 it should consist of a certificate examination, a visual examination of a sufficient extent of the ship and its equipment, and certain tests to confirm that their condition is being properly maintained;

.2 it should also include a visual examination to confirm that no unapproved modifications have been made to the ship and its equipment;

.3 the content of each annual survey is given in the respective guidelines; the thoroughness and stringency of the survey should depend upon the condition of the ship and its equipment; and

.4 should any doubt arise as to the maintenance of the condition of the ship or its equipment, further examination and testing should be conducted as considered necessary.

4.2.3 Where an annual survey has not been carried out within the due dates, reference should be made to 5.6.

(In) 4.3 Intermediate surveys

4.3.1 Frequency

The intermediate survey, as required by the relevant regulations (see 2.8.4) and as shown diagrammatically in appendix 2, should be held within three months before or after the second anniversary date or within three months before or after the third anniversary date of the appropriate certificate and should take the place of one of the annual surveys. Items associated with the cargo ship safety construction intermediate survey that are additional to the requirements of the annual survey may, alternatively, be carried out at the second or third annual survey or between these surveys.

4.3.2 General

4.3.2.1 The intermediate survey should be an inspection of items relevant to the particular certificate to ensure that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.3.2.2 When specifying items of hull and machinery for detailed examination, due account should be taken of any continuous survey schemes that may be applied by classification societies.

4.3.2.3 Where an intermediate survey has not been carried out within the due dates, reference should be made to 5.6.

(P) 4.4 Periodical surveys

4.4.1 Frequency

The periodical survey, as required by the relevant regulations (see 2.8.2) and as shown diagrammatically in appendix 2, should be held within three months before or after the second anniversary date or within three months before or after the third anniversary date in the case of the cargo ship safety equipment certificate and should take the place of one of the annual surveys; in the case of the cargo ship safety radio certificate, it should be held within three months before or after each anniversary date.

4.4.2 General

4.4.2.1 The periodical survey should consist of an inspection, with tests when necessary, of the equipment to ensure that requirements relevant to the particular certificate are complied with and that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.4.2.2 The periodical survey should also consist of a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate are on board the ship.

4.4.2.3 Where a periodical survey has not been carried out within the due dates, reference

should be made to 5.6.

(R) 4.5 Renewal surveys

4.5.1 Frequency

The renewal survey, as required by the relevant regulations (see 2.8.3) and as shown diagrammatically in the appendix 2, should be held before the appropriate certificate is renewed.

The cargo ship safety construction renewal survey may be commenced at the fourth annual survey and may be progressed during the succeeding year with a view to completion by the fifth anniversary date. The survey items of the fourth annual survey should not be credited to the completion of the renewal survey.

4.5.2 General

4.5.2 1 The renewal survey should consist of an inspection, with tests when necessary, of the structure, machinery and equipment to ensure that the requirements relevant to the particular certificate are complied with and that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.5.2.2 The renewal survey should also consist of a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate are on board the ship.

4.5.2.3 Concurrent crediting to both intermediate and renewal safety construction surveys for surveys of spaces should not be acceptable.

(B) 4.6 Inspections of the outside of the ship's bottom of cargo ships

4.6.1 Frequency

There should be a minimum of two inspections of the outside of the ship's bottom during any five-year period (see 5.7), except where SOLAS 74/88 regulation I/14(e) or (f) is applicable. One such inspection should be carried out on or after the fourth annual survey in conjunction with the renewal of the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate. Where the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate has been extended under SOLAS 74/88 regulation I/14(e) or (f), this five-year period may be extended to coincide with the validity of the certificate. In all cases the interval between any two such inspections should not exceed 36 months.

4.6.2 General

4.6.2.1 The inspection of the outside of the ship's bottom and the survey of related items (see 5.1) should include an inspection to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.[1]

4.6.2.2 Inspections of the outside of the ship's bottom should normally be carried out with the ship in dry dock. However, consideration may be given to alternate inspections being carried out with the ship afloat. Special consideration should be given before ships of 15 years of age and

[1] Refer to the *Guidelines for pre-planning of surveys in dry dock of ships which are not subject to the enhanced programme of inspections* (MSC.1/Circ.1223).

over other than bulk carriers and oil tankers are permitted to have such surveys afloat. Inspection of the outside of the ship's bottom of bulk carriers and oil tankers of 15 years of age and over should be carried out with the ship in dry dock. Inspections with the ship afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably trained staff are available. For ships subject to enhanced survey, the provisions of paragraph 2.2.2[*1] of the applicable part of annex A or B of the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 (2011 ESP Code) adopted by resolution A.1049(27), as amended, should apply.

4.6.3 Where an inspection of the ship's bottom has not been carried out before the due dates, reference should be made to 5.6.

(Ad) 4.7 Additional surveys

4.7.1 Frequency

The additional survey, as required by the relevant regulations (see 2.8.7), should be held:

1 when required after an investigation; or

2 whenever any important repairs or renewals are made; or

3 when ballast water management systems (BWMS) are retrofitted on an existing ship to which an International Ballast Water Management Certificate was previously issued.

4.7.2 General

Whenever an accident occurs to a ship or a defect is discovered which affects the safety or integrity of the ship or the efficiency or completeness of its equipment, the master or owner should make a report at the earliest opportunity to the Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate. The Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate should then initiate an investigation to determine whether a survey, as required by the regulations applicable to the particular certificate, is necessary. This additional survey, which may be general or partial according to the circumstances, should be such as to ensure that the repairs and any renewals have been effectively made and that the ship and its equipment continue to be fit for the service for which the ship is intended. In case of installations of BWMS on existing ships the survey shall be such as to ensure that this retrofit, replacement, or significant repair has been effectively made, so that the ship complies with the requirements of the BWM Convention.

4.8 Completion of surveys

4.8.1 If a survey shows that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificate or is not fit to proceed to sea without danger to the ship, or persons on board, or without presenting unreasonable threat of harm to the environment, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of SOLAS 74/88 regulation I/6(c), MARPOL Annex I

[1] "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 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 is available."

regulation 6.3.3, MARPOL Annex II regulation 8.2.5, MARPOL Annex IV regulation 4.5, MARPOL Annex VI regulation 5.3.3, IBC Code regulation 1.5.1.4, IGC Code regulation 1.4.1.4 and BCH Code regulation 1.6.1.3, or in the case of the BWM Convention the survey shows that the ship's ballast water management does not conform to the particulars of the Certificate required under regulations E-2 or E-3, or is such that the ship is not fit to proceed to sea without presenting a threat of harm to the environment, human health, property or resources, the surveyor should be guided by regulation E-1.6. These instruments require that corrective action be taken immediately and the Administration notified in due course. In cases where the corrective action has not been undertaken the relevant certificate should be withdrawn and the Administration notified immediately. If the ship is in the port of another Party, the appropriate authorities of the port State should also be notified immediately.

4.8.2 Although the Polar Code does not contain specific requirements, if the ship is trading in polar waters and a survey shows that the condition of the ship or its equipment does not correspond substantially with the particulars of the Polar Ship Certificate, or the ship is not fit to operate in polar waters without danger to the ship, or persons on board, or without presenting unreasonable threat of harm to the environment, the officer of the Administration, nominated surveyor or recognized organization should, nevertheless, be guided by 4.8.1. The validity of the Polar Ship Certificate does not affect the validity of other certificates.

4.8.3 Although LLC 66/88 does not contain specific requirements, if a load line survey shows that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificate or is not fit to proceed to sea without danger to the ship, or persons on board, or without presenting unreasonable threat of harm to the environment, the officer of the Administration, nominated surveyor or recognized organization should, nevertheless, be guided by 4.8.1.

4.8.4 If a survey shows that the condition of the ship and its equipment correspond substantially with the particulars of the certificate, and the ship is fit to proceed to sea without danger to the ship, or persons on board, and without presenting unreasonable threat of harm to the environment, but deficiencies exist that cannot be rectified at the time of survey, the following guidance should be given:

.1 a condition should be issued, detailing any relevant requirements or conditions with assigned due date for the time needed to rectify the deficiencies, with relevant information being kept available on board; if and as required by the Administration, the relevant certificates should be issued with the appropriate expiry dates; and

.2 the Administration should be notified, as appropriate, according to the agreement with the nominated surveyor or the recognized organization.

5 AMPLIFICATION OF TERMS AND CONDITIONS

5.1 Definition of related items

Reference: SOLAS 74/88 regulation I/10(b)(v).
Related items mean those items which may only be inspected when the ship is in dry dock or undergoing an in-water examination of the outside of its bottom. For oil tankers, chemical tankers and gas carriers, this may mean that the ship has to be specially prepared by, for example, being cleaned and gas freed. Then the survey of items such as the internal examination of cargo tanks, as referred to in (CIn) 2.3.2 and (CIn) 2.3.3 in annex 1 may be undertaken at the same time.

5.2 Extending to five years a certificate issued for less than five years

References: SOLAS 74/88 regulation I/14(c), LLC 66/88 article 19(3), MARPOL Annex I regulation 10.3, MARPOL Annex II regulation 10.3, MARPOL Annex IV regulation 8.3, MARPOL Annex VI regulation 9.3, BWM Convention regulations E-5.5 and E-5.6, IBC Code regulation 1.5.6.3, IGC Code regulation 1.4.6.3, BCH Code regulation 1.6.6.3, and Polar Code part I-A /regulation 1.3.6.

Where a certificate has been issued for a period of less than five years, it is permissible under these regulations or article to extend the certificate so that its maximum period of validity is five years provided that the pattern of surveys for a certificate with a five-year period of validity is maintained (see appendix 2). This means that, for example, if a request is made to extend a two-year Cargo Ship Safety Equipment Certificate to five years, then a periodical and two further annual surveys, as detailed in SOLAS 74/88 regulation I/8, would be required. Also, for example, if it was intended to extend a four-year Cargo Ship Safety Construction Certificate to five years, an additional annual survey would be required, as detailed in SOLAS 74/88 regulation I/10. Where a certificate has been so extended, it is still permissible to also extend the certificate under SOLAS 74/88 regulations I/14(e) and (f), LLC 66/88 articles 19(5) and (6), MARPOL Annex I regulations 10.5 and 10.6, MARPOL Annex II regulations 10.5 and 10.6, MARPOL Annex IV regulations 8.5 and 8.6, MARPOL Annex VI regulations 9.5 and 9.6, BWM Convention regulation E-5.2.2, IBC Code regulations 1.5.6.5 and 1.5.6.6, IGC Code regulations 1.4.6.5 and 1.4.6.6, and BCH Code regulations 1.6.6.5 and 1.6.6.6, when no additional surveys would be required but, of course, the new certificate issued after the renewal survey would date from the five-year expiry of the existing certificate, in accordance with SOLAS 74/88 regulation I/14(b)(ii), LLC 66/88 article 19(2)(b), MARPOL Annex I regulation 10.2.2, MARPOL Annex II regulation 10.2.2, MARPOL Annex IV regulation 8.2.2, MARPOL Annex VI regulation 9.2.2, BWM Convention regulation E-5.3, IBC Code regulation 1.5.6.2.2, IGC Code regulation 1.4.6.2.2, BCH Code regulation 1.6.6.2.2 and Polar Code part I-A/regulation 1.3.6.

5.3 Extending the period between inspections of the outside of the ship's bottom

Reference: SOLAS 74/88 regulation I/10(a)(v).

This permits the period of five years in which two inspections of the ship's bottom are to be carried out to be extended when the Cargo Ship Safety Construction Certificate is extended under regulation I/14(e) and (f). However, no extension should be permitted on the period of 36 months between any two such inspections. If the first ship's bottom inspection is carried out between 24 and 27 months, the 36-month limitation may prevent the certificate being extended by the periods permitted in regulation I/14(e) and (f).

5.4 Definition of "short voyage"

References: SOLAS 74/88 regulation I/14(f), LLC 66/88 article 19(6), MARPOL Annex I regulation 10.6, MARPOL Annex II regulation 10.6, MARPOL Annex IV regulation 8.6, MARPOL Annex VI regulation 9.6, BWM Convention regulation E-5.3, IBC Code regulation 1.5.6.6, IGC Code regulation 1.4.6.6, BCH Code regulation 1.6.6.6 and Polar Code part I-A/ regulation 1.3.6.

For the purpose of these regulations or article, a "short voyage" means a voyage where neither the distance from the port in which the voyage begins to the final port of destination nor the return voyage exceeds 1,000 miles.

5.5 Application of "special circumstances"

References: SOLAS 74/88 regulation I/14(g), LLC 66/88 article 19(7), MARPOL Annex I regulation 10.7, MARPOL Annex II regulation 10.7, MARPOL Annex IV regulation 8.7, MARPOL Annex VI regulation 9.7, BWM Convention regulation E-5.7, IBC Code regulation 1.5.6.7, IGC Code regulation 1.4.6.7, BCH Code regulation 1.6.6.7 and Polar Code part I-A/ regulation 1.3.6.

The purpose of these regulations or article is to permit Administrations to waive the requirement that a certificate issued following a renewal survey that is completed after the expiry of the existing certificate should be dated from the expiry date of the existing certificate. The special circumstances when this could be permitted are where the ship has been laid up or has been out of service for a considerable period because of a major repair or modification. While the renewal survey would be as extensive as if the ship had continued in service, the Administration should consider whether additional surveys or examinations are required depending on how long the ship was out of service and the measures taken to protect the hull and machinery during this period. Where this regulation is invoked, it is reasonable to expect an examination of the outside of the ship's bottom to be held at the same time as the renewal survey when it would not be necessary to include any special requirements for cargo ships for the continued application of SOLAS 74/88 regulation I/10(a)(v).

5.6 Revalidation of certificates

References: SOLAS 74/88 regulation I/14(i)(i), LLC 66/88 article 19(9)(c), MARPOL Annex I regulation 10.9.1, MARPOL Annex II regulation 10.9.1, MARPOL Annex IV regulation 8.8.1, MARPOL Annex VI regulation 9.9.1, BWM Convention E-5.9.3, IBC Code regulation 1.5.6.9.1, IGC Code regulation 1.4.6.9.1, BCH Code regulation 1.6.6.9.1 and Polar Code part I-A/regulation 1.3.6.

A certificate ceases to be valid if the periodical, intermediate or annual survey, as appropriate, or the inspection of the outside of the ship's bottom is not completed within the periods specified in the relevant regulation or article. The validity of the certificate should be restored by carrying out the appropriate survey which, in such circumstances, should consist of the requirements of the survey that was not carried out, but its thoroughness and stringency should have regard to the time this survey was allowed to lapse. The Administration concerned should then ascertain why the survey was allowed to lapse and consider further action.

5.7 Meaning of "any five-year period"

Reference: SOLAS 74/88 regulation I/10(a)(v).

Any five-year period is the five-year period of validity of the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate.

5.8 Surveys required after transfer of the ship to the flag of another State

The certificates cease to be valid when a ship transfers to the flag of another State and it is required that the Government of the State to which the ship transfers should not issue new certificates until it is fully satisfied that the ship is being properly maintained and that there have been no unauthorized changes made to the structure, machinery and equipment. When so requested, the Government of the State whose flag the ship was formerly entitled to fly is obliged to forward, as soon as possible, to the new Administration copies of certificates carried by the ship before the transfer and, if available, copies of the relevant survey reports and records, such as record of safety equipment and conditions of assignment for load line. When

fully satisfied by an inspection that the ship is being properly maintained and that there have been no unauthorized changes, in order to maintain the harmonization of the surveys the new Administration may give due recognition to initial and subsequent surveys carried out by, or on behalf of, the former Administration and issue new certificates having the same expiry date as the certificates that ceased to be valid because of the change of flag.

5.9 Recommended conditions for extending the period of validity of a certificate

5.9.1 In SOLAS 74/88 and other mandatory IMO instruments the following provision applies: If a ship at the time when a certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of a certificate but this extension should be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases *where it appears proper and reasonable to do so*. No certificate should be extended for a period longer than three months, and a ship to which an extension is granted should not, on its arrival in the port in which is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate.

5.9.2 If a ship is in a port where the required survey cannot be completed, and where the Convention allows the Administration to extend the certificate when it is proper and reasonable to do so, the Administration should be guided by the following:

.1 an additional survey, equivalent to at least the same scope of an annual survey required by the relevant certificate(s) should be carried out;

.2 the renewal survey should be carried out to the maximum extent possible;

.3 in cases where a dry-docking is required, but cannot be carried out, an underwater inspection of the ship's bottom should be carried out;

.4 in cases where an underwater inspection is not possible (e.g. poor water visibility, draught restrictions, excessive current, refusal by the port Authority), an internal inspection of the ship's bottom structure, to the maximum extent practicable, should be carried out;

.5 the ship should be allowed to sail directly to a named final agreed cargo discharge port and then directly to a named agreed port to complete the survey and/or dry-docking;

.6 the extension period should be for the minimum amount of time needed to complete the survey and/or dry-docking under the relevant certificate(s);

.7 the condition of the ship found by the surveys indicated above should be considered in determining the duration, distance and operational restrictions, if any, of the voyage needed to complete the survey and/or dry-docking; and

.8 the extension period of the relevant statutory certificate(s) should not exceed the period of validity of the certificate which may be issued to document compliance with the structural, mechanical and electrical requirements of the recognized classification society.

5.10 Inspection of the outside of a passenger ship's bottom

5.10.1 A minimum of two of the inspections of the outside of the ship's bottom during any five-year period should be conducted in dry dock. In all cases, the maximum interval between any two dry-dock bottom inspections should not exceed 36 months.

5.10.2 Where acceptable to the Administration, the minimum number of inspections in dry dock of the outside of the bottom of a passenger ship which is not a ro-ro passenger ship in any five-year period may be reduced from two to one.[1] In such cases the interval between consecutive inspections in dry dock should not exceed 60 months.

Note: The definition of "any five-year period" is the five-year period of validity of the International Load Line Certificate.

5.10.3 Inspections of the ship's bottom required for the renewal survey that are not conducted in dry dock may be carried out with the ship afloat. The bottom inspection, regardless of method, should be carried out within the allowable time window for the Passenger Ship Safety Certificate renewal survey (i.e. within the three-month time window before the expiry date of the certificate). Additionally, inspections of the outside of the ship's bottom conducted afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably qualified staff are available. Rudder bearing clearances specified in (PR) 5.2.2.1 need not be taken at the afloat inspections.

5.10.4 Special consideration should be given to ships 15 years of age or over before being permitted to credit inspections afloat.

5.10.5 If a survey in dry dock is not completed within the maximum intervals referred to above, the Passenger Ship Safety Certificate should cease to be valid until the survey in dry dock is completed.

5.11 Survey of radio installations

The survey of the radio installations, including those used in life-saving appliances, should always be carried out by a qualified radio surveyor who has necessary knowledge of the requirements of SOLAS 74, the International Telecommunication Union's Radio Regulations and the associated performance standards for radio equipment. The radio survey should be carried out using suitable test equipment capable of performing all the relevant measurements required by these Guidelines. On satisfactory completion of the survey, the radio surveyor should forward a report of the survey, which should also state the organization he or she represents, to the authorities responsible for the issue of the ship's Cargo Ship Safety Radio Certificate or Passenger Ship Safety Certificate.

5.12 Survey of the automatic identification system (AIS)

The survey of the automatic identification system should always be carried out by a qualified radio surveyor who has necessary knowledge of the requirements of SOLAS 74, the International Telecommunication Union's Radio Regulations and the associated performance standards for radio equipment. The survey of the automatic identification system should be carried out using suitable test equipment capable of performing all the relevant measurements required by and in accordance with the *Guidelines on annual testing of the automatic identification system (AIS)* (MSC.1/Circ.1252).

5.13 Surveys for ships intended to operate in polar waters[2]

5.13.1 In accordance with SOLAS 74/88 regulations XIV/2.1 and 3.1, MARPOL Annex I

[1] Refer to the *Guidelines for the assessment of technical provisions for the performance of an in-water survey in lieu of bottom inspection in dry-dock to permit one dry-dock examination in any five-year period for passenger ships other than ro-ro passenger ships* (MSC.1/Circ.1348).

[2] Refer to the *Unified interpretations of SOLAS regulation XIV/2.2 and paragraphs 1.3.2 and 1.3.6, part I-A of the Polar Code* (MSC.1/Circ.1562).

regulation 47, MARPOL Annex II regulation 22, MARPOL Annex IV regulation 18 and MARPOL Annex V regulation 14, the Polar Code is a standalone instrument, providing requirements additional to SOLAS 74/88 and MARPOL for ships intended to operate in polar waters. The requirements of the Polar Code should be surveyed in the context of the surveys under SOLAS 74/88 and MARPOL, but do not form separate survey types.

5.13.2 For MARPOL Annexes I and II,[1] compliance with the Polar Code should be indicated on the International Oil Pollution Prevention Certificate and, where applicable, the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk. For SOLAS 74/88, the Polar Ship Certificate should be issued (Polar Code, paragraph 1.3) and endorsed for compliance with the Polar Code. The Polar Ship Certificate should be perceived as a certificate additional to SOLAS certificates for ships intended to operate in polar waters, and the validities of other certificates are not affected by it when a ship stays outside of polar areas.

5.13.3 Although there is no dedicated type of survey associated with the Polar Ship Certificate, the following types of survey are applicable in the Survey Guidelines in annex 5 and contain survey items specific to the Polar Ship Certificate:

.1 the initial survey would confirm the survey scopes of the items related to part I-A of the Polar Code with respect to the initial surveys of safety construction, safety equipment and safety radio of cargo ships or the initial survey of the Passenger Ship Safety Certificate;

.2 the annual survey would confirm the survey scopes of the items related to part I-A of the Polar Code with respect to the periodical safety radio survey and the annual safety construction and safety equipment surveys of cargo ships;

.3 the intermediate survey would confirm the survey scopes of the items related to part I-A of the Polar Code with respect to the intermediate safety construction survey of cargo ships;

.4 the periodical survey (second or third year of its validity) would confirm the survey scopes of the items related to part I-A of the Polar Code with respect to the periodical safety equipment survey of cargo ships; and

.5 the renewal survey would confirm the survey scopes of the items related to part I-A of the Polar Code with respect to the renewal surveys of safety construction, safety equipment and safety radio of cargo ships or the renewal survey of the Passenger Ship Safety Certificate.

5.13.4 For a Polar Ship Certificate issued to a cargo ship, the endorsements of the certificate for annual survey, intermediate survey and periodical survey would confirm the satisfactory completion of the survey scopes as stated respectively in subparagraphs 5.13.3.2 to 5.13.3.4.

5.13.5 For a Polar Ship Certificate issued to a passenger ship, only the endorsements in accordance with SOLAS 74/88 regulations I/14(d) and I/14(e) or I/14(f) are applicable.

5.13.6 After the relevant surveys under the related SOLAS certificates together with the survey items relevant to the Polar Code are carried out, the relevant SOLAS certificates should then be endorsed prior to the Polar Ship Certificate being issued/endorsed.

[1] Refer to the *Guidance for issuing revised certificates, manuals and record books under Annexes I, II and V of MARPOL for compliance with environment-related requirements of the Polar Code* (MEPC.1/Circ.856 and Corr.1).

5.13.7 In the event that the Polar Ship Certificate has ceased to be valid or has expired for a period of time and other certificates remain valid, the Administration may require, as deemed appropriate, a survey which addresses only the survey items additional to the survey items under the related SOLAS certificates for reinstating the validity of the Polar Ship Certificate. The duration of the related SOLAS certificates should remain unchanged.

Annex 1

SURVEY GUIDELINES UNDER THE 1974 SOLAS CONVENTION, AS MODIFIED BY THE 1988 PROTOCOL RELATING THERETO

(E) **1** **GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY EQUIPMENT CERTIFICATE**

(EI) **1.1** **Initial surveys** – see part "General" section 4.1.

(EI) 1.1.1 For the life-saving appliances and the other equipment of cargo ships the examination of plans and designs should consist of:

(EI) 1.1.1.1 examining the plans for the fire pumps including the emergency fire pump,[1] if applicable, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/00/14 regs.II-2/10.2 and 10.4.4 and FSS Code chs.2 and 12);

(EI) 1.1.1.2 checking the provision, specification and arrangements of the fire extinguishers (SOLAS 74/00 reg.II-2/10.3) (SOLAS 74/88 reg.II-2/6);

(EI) 1.1.1.3 checking the provision, specification and arrangements of the fire-fighters' outfits including their self-contained compressed air breathing apparatus, emergency escape breathing devices (EEBDs), onboard means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (SOLAS 74/00/12 regs.II-2/10.10, 13.3.4, 13.4.3 and 15.2.2; FSS Code ch.3) (SOLAS 74/88 reg.II-2/17) (BCH Code, ch.III, part E);

(EI) 1.1.1.4 examining the plans for the fire-extinguishing arrangements in the machinery spaces (SOLAS 74/00/12/14/16 regs.II-2/10.4 and 10.5 (except 10.5.5); FSS Code chs.5, 6 and 7) (SOLAS 74/88 reg.II-2/7);

(EI) 1.1.1.5 examining the plans for the special arrangements in the machinery spaces (SOLAS 74/00 regs.II-2/5.2, 8.3 and 9.5) (SOLAS 74/88 reg.II-2/11);

(EI) 1.1.1.6 checking the provision of a fixed fire detection and fire alarm system for machinery spaces including periodically unattended machinery spaces and enclosed spaces containing incinerators (SOLAS 74/00/10 regs.II-2/7.2, 7.3 and 7.4; FSS Code ch.9) (SOLAS 74/88 regs.II-2/13 and 14);

(EI) 1.1.1.7 checking the provision of a fixed fire detection and fire alarm system and/or a sprinkler, fire detection and fire alarm system in accommodation and service spaces and control stations (SOLAS 74/00 regs.II-2/7.2, 7.3, 7.5.5, 7.7 and 10.6.2; FSS Code chs.8 and 9) (SOLAS 74/88 reg.II-2/52);

[1] Refer to the *Unified interpretation of chapter 12 of the International Code for Fire Safety Systems* (MSC.1/Circ.1388).

(EI) 1.1.1.8 checking the provision of a fire-extinguishing system for spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces (SOLAS 74/00 regs.II-2/10.6.3 and 10.6.4; FSS Code chs.5 and 7) (SOLAS 74/88 regs.II-2/18.7) (BCH Code ch.III, part E);

(EI) 1.1.1.9 examining the arrangements for remote closing of valves for oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.2.3.4) (SOLAS 74/88 reg.II-2/15.2.5);

(EI) 1.1.1.10 examining the plans for the fire protection arrangements in cargo spaces for general cargo and dangerous goods (SOLAS 74/00/14 regs.II-2/10.7.1, 10.7.2 and 19) (SOLAS 74/88 regs.II-2/53 and 54);

(EI) 1.1.1.11 examining the plans for the fire protection arrangements for ships designed to carry containers on or above the weather deck, as applicable, including provision of the water mist lance, and as appropriate, mobile water monitors and all necessary hoses, fittings and required fixing hardware together with the requirements additional to fire pumps, fire mains, fire hoses and fire hydrants (SOLAS 74/00/14 reg.II 2/10.7.3);

(EI) 1.1.1.12 examining the plans for the fire protection arrangements in vehicle, special category and ro-ro spaces, including the fire safety arrangements for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo, as applicable (SOLAS 74/00/14 reg.II-2/20 (except 20.2.2 and 20.5) and 20-1; FSS Code chs.5, 6, 7, 9 and 10) (SOLAS 74/88 regs.II-2/37, 38 and 53);

(EI) 1.1.1.13 checking navigation bridge visibility (SOLAS 74/00 reg.V/22);

(EI) 1.1.1.14 examining the plans for the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8);

(EI) 1.1.1.15 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection including sample extraction smoke detection systems, where applicable, ventilation, bilge pumping, personnel protection and any water spray system (SOLAS 74/00 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4); FSS Code chs.9 and 10) (SOLAS 74/88 reg.II-2/54);

(EI) 1.1.1.16 examining the provision and disposition of the survival craft and rescue boats and, where applicable, marine evacuation systems (MESs) (SOLAS 74/88 regs.III/11 to 16, 31 and 33);

(EI) 1.1.1.17 examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 74/00/06 regs.II-2/17 and III/38);

(EI) 1.1.1.18 examining the design of the survival craft, including their construction equipment, fittings, release mechanisms and recovery appliances and embarkation and launching arrangements (SOLAS 74/96/06/11 regs.III/4,16, 31, 32 to 33; LSA Code sections 3.2, 4.1 to 4.9, 6.1 and 6.2);

(EI) 1.1.1.19 checking that the life-saving appliances are of an international or vivid reddish orange, or a comparably highly visible colour on all parts where this will assist detection at sea (LSA Code section 1.2.2.6);

(EI) 1.1.1.20 examining the design of the rescue boats, including their equipment and launching and recovery appliances and arrangements (SOLAS 74/00 regs.III/17 and 31; LSA Code sections 5.1 and 6.1);

(EI) 1.1.1.21 examining the provision, specification and stowage of two-way VHF radiotelephone apparatus and search and rescue locating devices (SOLAS 74/88/08 reg.III/6);

(EI) 1.1.1.22 examining the provision, specification and stowage of the distress flares and the line-throwing appliance and the provision of onboard communications equipment and the general alarm system (SOLAS 74/00 regs.II-2/12.1 and 12.2, and regs.III/6 and 18; and LSA Code sections 3.1, 7.1 and 7.2);

(EI) 1.1.1.23 examining the provision, specification and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets,[1] immersion suits and anti-exposure suits (SOLAS 74/00/06 regs.III/7 and 32; LSA Code sections 2.1 to 2.5 and 3.1 to 3.3);

(EI) 1.1.1.24 checking that immersion suits designed to be worn in conjunction with a lifejacket are suitably marked (LSA Code section 2.3.1);

(EI) 1.1.1.25 examining the plans for the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including the supply from the emergency source of power (SOLAS 74/88 regs.II-1/43 and III/11);

(EI) 1.1.1.26 examining the plans for the positioning of, and the specification for, the navigation lights, shapes and sound signalling equipment (COLREG 1972, rules 20 to 24, 27 to 30 and 33);

(EI) 1.1.1.27 examining the plans relating to the bridge design and arrangement of navigational systems and equipment and bridge procedures (SOLAS 74/00 regs.V/15 and 19);

(EI) 1.1.1.28 checking the provision and specification of the following navigation equipment as appropriate: daylight signalling lamp, magnetic compass, transmitting heading device, gyro compass, gyro compass repeaters, radar installation(s), automatic identification system, electronic plotting aid, automatic tracking aid(s) or automatic radar plotting aid(s), echo-sounding device, speed and distance measuring device(s), rudder angle indicator, propeller rate of revolution indicator, variable-pitch

[1] SOLAS regulation III/7.2.1.5 should be considered.

propeller pitch and operational mode indicator, rate-of-turn indicator, heading or track control system, GNSS receiver, terrestrial radio navigation system and sound reception system, means of communication with emergency steering position, a pelorus or compass bearing device, means for correcting heading and bearings, a bridge navigational watch alarm system (BNWAS) as applicable and an electronic chart display and information system (ECDIS) including backup arrangements as applicable (SOLAS 74/00/09/13 reg.V/19);

(EI) 1.1.1.29 checking the provision and specification of voyage data recorder (SOLAS 74/00 reg.V/20);

(EI) 1.1.1.30 checking the provision and specification of the long-range identification and tracking system (SOLAS 74/04 reg.V/19-1);

(EI) 1.1.1.31 checking the plans and specification for the pilot transfer arrangement, the pilot ladders, the combination arrangements, where applicable, the access to the ship's deck and the associated equipment and lighting (SOLAS 74/88/10 reg.V/23); and

(EI) 1.1.1.32 checking the provision of means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders (SOLAS 74/08 reg.II-1/3-9).

(EI) 1.1.2 For the examination of plans and designs of the life-saving appliances and the other equipment of cargo ships, the additional requirements for tankers should consist of:

(EI) 1.1.2.1 examining the plans for the cargo tank protection (SOLAS 74/00/15 regs.II-2/4.5.3, 4.5.5, 4.5.6 and 10.8; FSS Code chs.14 and 15) (SOLAS 74/88 regs.II-2/60 and 62);

(EI) 1.1.2.*2* examining the plans for gas measurement in double hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 74/10 reg.II-2/4.5.7.2);

(EI) 1.1.2.3 examining, for oil tankers of 20,000 tonnes deadweight and above, the plans for the fixed hydrocarbon gas detection system for measuring hydrocarbon gas concentrations in all ballast tanks and void spaces of double hull and double bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks (SOLAS 74/10 reg.II-2/4.5.7.3 and FSS Code ch.16); and

(EI) 1.1.2.4 examining the plans for protection of the cargo pump-rooms (SOLAS 78/00 regs.II-2/4.5.10 and 10.9) (SOLAS 74/88 reg.II-2/63).

(EI) 1.1.3 For the examination of plans and designs of the life-saving appliances and the other equipment of cargo ships using natural gas as fuel other than ships covered by the IGC Code, the additional requirements should consist of:

(EI) 1.1.3.1 examining the plans, for the fire detection and alarm system and fire-fighting arrangements (IGF Code paras.11.4, 11.5, 11.6 and 11.7).

(EI) 1.1.4 For the life-saving appliances and the other equipment of cargo ships the survey during construction and after installation should consist of:

(EI) 1.1.4.1 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship while the required pressure is maintained in the fire main; and testing that the emergency fire pump has the required capacity, and if the emergency fire pump is the main supply of water for any fixed fire-extinguishing system, checking that the emergency fire pump has the capacity for this system[1] (SOLAS 74/00/14 reg.II-2/10.2; FSS Code chs.2 and 12) (SOLAS 74/88 regs.II-2/4 and 19);

(EI) 1.1.4.2 for ships designed to carry containers on or above the weather deck, as applicable, testing the water mist lance, and as appropriate, the mobile water monitors and examining all necessary hoses, fittings and required fixing hardware, and testing that the mobile water monitors are capable of being securely fixed to the ship structure ensuring safe and effective operation, and testing that the mobile water monitor jets reach the top tier of containers with all required monitors and water jets from fire hoses operated simultaneously (SOLAS 74/00/14 reg.II-2/10.7.3);

(EI) 1.1.4.3 examining the provision and disposition of the fire extinguishers (SOLAS 74/00 reg.II-2/10.3; FSS Code ch.4) (SOLAS 74/88 reg.II-2/17);

(EI) 1.1.4.4 examining the fire-fighters' outfits including their self-contained compressed air breathing apparatus, emergency escape breathing devices (EEBDs), onboard means of recharging breathing apparatus cylinders used during drills or the provision of a suitable number of spare cylinders to replace those used, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (SOLAS 74/00/12 regs.II-2/10.10, 13.3.4, 13.4.3 and 15.2.2; FSS Code ch.3) (SOLAS 74/88 reg.II-2/17) (BCH Code ch.III, part E);

(EI) 1.1.4.5 checking the operational readiness and maintenance of fire-fighting systems (SOLAS 74/00 reg.II-2/14.1) (SOLAS 74/88 reg.II-2/21);

(EI) 1.1.4.6 examining the fixed fire-fighting system for the machinery, cargo, vehicle, special category and ro-ro spaces, as appropriate, and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/00/08/12/14 regs.II-2/10.4, 10.5, 10.7.1, 10.7.2 and 20.6.1; FSS Code chs.5 to 7) (SOLAS 74/88 regs.II-2/7 and 53);

(EI) 1.1.4.7 checking that fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms, where applicable, are provided with two separate controls, one for opening of the gas piping and one for discharging the gas from the storage container, each of them located in a release box clearly identified for the particular space (SOLAS 74/08 reg.II-2/10.4.1.5);

[1] Refer to the *Unified interpretation of chapter 12 of the International Code for Fire Safety Systems*(MSC.1/Circ.1388).

(EI) 1.1.4.8 examining the fire-extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power-operated and other doors, the stopping of ventilation and boiler forced and induced draught fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/00/12/14/16 regs.II-2/5.2, 8.3, 9.5 and 10.5) (SOLAS 74/88 regs.II-2/7 and 11);

(EI) 1.1.4.9 examining any fixed fire detection and alarm system and any automatic sprinkler, fire detection and fire alarm system, and any sample extraction smoke detection system, and confirming that installation tests have been satisfactorily completed (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.1, 7.5.5, 19.3.3 and 20.4; FSS Code chs.8, 9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);

(EI) 1.1.4.10 examining the fire-extinguishing system for spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces and confirming that installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/00regs.II-2/10.6.3 and 10.6.4; FSS Code chs.4 to 7) (SOLAS 74/88 reg.II-2/18.7) (BCH Code ch.III, part E);

(EI) 1.1.4.11 examining the arrangements for oil fuel, lubricating oil and other flammable oils and testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.2.3.4) (SOLAS 74/88 reg.II-2/15.2.5);

(EI) 1.1.4.12 examining the fire protection arrangements in cargo vehicle and ro-ro spaces, including the fire safety arrangements for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo, as applicable, and confirming, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/00/14 regs.II-2/10.7.1, 10.7.2, 20.2.1, 20.3, 20.6.2, 20-1.2.1, 20-1.3, and 20-1.4) (SOLAS 74/88 reg.II-2/53);

EI) 1.1.4.13 examining the portable gas detectors suitable for the detection of the gas fuel, for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo (SOLAS 74/14 regs.II-2/20-1.2.1 and 20-1.5);

(EI) 1.1.4.14 examining, where applicable, the alternative design and arrangements for fire safety or life-saving appliances and arrangements, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 74/00/06 regs.II-2/17 and III/38);

(EI) 1.1.4.15 examining the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8);

(EI) 1.1.4.16 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, the ventilation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/00/08 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4); FSS Code chs.9 and 10) (SOLAS 74/88 reg.II-2/54);

(EI) 1.1.4.17 checking that the life-saving appliances are of international or vivid reddish orange, or a comparably highly visible colour on all parts where this will assist detection at sea (LSA Code section 1.2.2.6);

(EI) 1.1.4.18 checking the provision and disposition of the survival craft, where applicable, marine evacuation systems and rescue boats (SOLAS 74/88 regs.III/11 to 16 and 31; LSA Code section 6.2);

(EI) 1.1.4.19 deployment of 50% of the MES after installation (LSA Code paragraph 6.2.2.2);

(EI) 1.1.4.20 examining each survival craft, including its equipment; for liferafts provided for easy side-to-side transfer, verifying that they are less than 185 kg (SOLAS 74/88 reg.III/31; LSA Code sections 2.5, 3.1 to 3.3 and 4.1 to 4.9) (SOLAS 74/00 reg.III/31.1);

(EI) 1.1.4.21 examining the embarkation arrangements for each survival craft and the testing of each launching appliance, including overload tests, tests to establish the lowering speed and the lowering of each survival craft to the water with the ship at its lightest seagoing draught, and, where applicable, launching underway at 5 knots, checking the recovery of each lifeboat (SOLAS 74/00 regs.III/11, 12, 13, 16, 31 and 33; LSA Code section 6.1);

(EI) 1.1.4.22 examining the embarkation arrangements for each marine evacuation device, where applicable, and the launching arrangements, including inspection for lack of side shell opening between the embarkation station and waterline, review of distance to the propeller and other life-saving appliances and ensuring that the stowed position is protected from heavy weather damage, as much as practicable (SOLAS 74/00 reg.III/15; LSA Code section 6.2);

(EI) 1.1.4.23 examining each rescue boat, including its equipment; for inflatable rescue boats, confirming that they are stowed in a fully inflated condition (SOLAS 74/88 regs.III/14 and 31; LSA Code sections 2.5, 5.1 and 6.1);

(EI) 1.1.4.24 examining the embarkation and recovery arrangements for each rescue boat and testing each launching and recovery appliance, including overload tests, tests to establish the lowering and recovery speeds and ensuring that each rescue boat can be lowered to the water and recovered with the ship at its lightest seagoing draught, launching underway at 5 knots (SOLAS 74/88 regs.III/14, 17 and 31; LSA Code section 6.1);

(EI) 1.1.4.25 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern (SOLAS 74/00 reg.III/19);

(EI) 1.1.4.26 confirming that there are posters or signs in the vicinity of survival craft and their launching stations and containers, brackets, racks and other similar stowage locations for life-saving equipment (SOLAS 74/88 regs.III/9 and 20);

(EI) 1.1.4.27 examining the provision and stowage and checking the operation of portable onboard communications equipment, if provided, and two-way VHF radiotelephone apparatus[1] and search and rescue locating devices SOLAS 74/88/08 regs.II-2/12.2 and III/6);

(EI) 1.1.4.28 examining the provision and stowage of the distress flares and the line-throwing appliance, checking the provision and operation of fixed onboard communications equipment, if provided, and testing the means of operation of the general alarm system (SOLAS 74/00 regs.III/6 and 18; LSA Code sections 3.1, 7.1 and 7.2);

(EI) 1.1.4.29 examining the provision, disposition and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets,[2] immersion suits and anti-exposure suits (SOLAS 74/00/06 regs.III/7 and 32; LSA Code sections 2.1 to 2.5 and 3.1 to 3.3);

(EI) 1.1.4.30 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 regs.II-1/43 and III/11);

(EI) 1.1.4.31 examining the provision and positioning and checking the operation of, as appropriate, the navigation lights, shapes and sound signalling equipment (COLREG 1972, rules 20 to 24, 27 to 30 and 33);

(EI) 1.1.4.32 checking that the minimum safe distances from the steering and standard magnetic compasses for all electrical equipment are complied with (SOLAS 74/00 regs.V/17 and 19);

(EI) 1.1.4.33 checking the electromagnetic compatibility of electrical and electronic equipment on or in the vicinity of the bridge (SOLAS 74/00 reg.V/17);

(EI) 1.1.4.34 checking, as appropriate, the provision and operation of the following shipborne navigational systems equipment (SOLAS 74/00 reg.V/19):

(EI) 1.1.4.34.1 the magnetic compass, including examining the siting, movement and illumination and a pelorus or compass bearing device (SOLAS 74/00 reg.V/19);

(EI) 1.1.4.34.2 nautical charts and nautical publications necessary for the intended voyage are available and have been updated, and, where ECDIS is used, the electronic charts have been updated and the required backup system is provided and updated (SOLAS 74/00/09 reg.V/19);

(EI) 1.1.4.34.3 global navigation satellite system receiver or terrestrial radionavigation system;

[1] Expired primary batteries, which complied with the requirements of paragraph 12.6 of *Revised recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.149 (77)), could be used for no other purpose than to examine and check the operation of two-way VHF radiotelephone apparatus.

[2] SOLAS regulation III/7.2.1.5 should be considered.

(EI) 1.1.4.34.4 sound-reception system, when bridge is totally enclosed;

(EI) 1.1.4.34.5 means of communication to emergency steering position, where provided;

(EI) 1.1.4.34.6 spare magnetic compass;

(EI) 1.1.4.34.7 daylight signalling lamp;

(EI) 1.1.4.34.8 echo-sounding device;

(EI) 1.1.4.34.9 radar(s), including examining the waveguide and cable runs for routeing and protection and the display unit confirming lighting, correct operation of all controls, and functions;

(EI) 1.1.4.34.10 electronic plotting aid, automatic tracking aid or automatic radar plotting aid as appropriate, using the appropriate test facilities;

(EI) 1.1.4.34.11 speed and distance measuring devices "through the water" and "over the ground";

(EI) 1.1.4.34.12 transmitting heading device providing heading information to radar, plotting aids and automatic identification system equipment;

(EI) 1.1.4.34.13 automatic identification system;

(EI) 1.1.4.34.14 gyrocompass, including examining the alignment of the master and all repeaters;

(EI) 1.1.4.34.15 rudder angle indicator;

(EI) 1.1.4.34.16 propeller rate of revolution indicator;

(EI) 1.1.4.34.17 propeller, operational mode, thrust, and pitch indicator;

(EI) 1.1.4.34.18 rate-of-turn indicator;

(EI) 1.1.4.34.19 heading or track control system;

(EI) 1.1.4.34.20 BNWAS;

(EI) 1.1.4.35 checking for the provision and operation of the voyage data recorder (SOLAS 74/00 reg.V/20);

(EI) 1.1.4.36 checking the record of the voyage data recorder annual performance test (SOLAS 74/00 reg.V/18);

(EI) 1.1.4.37 checking navigation bridge visibility (SOLAS 74/00 reg.V/22);

(EI) 1.1.4.38 checking that a valid conformance test report of the long-range identification and tracking system is available on board (SOLAS 74/04 reg.V/19-1);

(EI) 1.1.4.39 checking the provision of the pilot transfer arrangement, the access to the ship's deck and the associated equipment and lighting, checking the operation of the pilot ladders and the combination arrangements (SOLAS 74/00/10 reg.V/23);

(EI) 1.1.4.40 checking the provision of means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders (SOLAS 74/08 reg.II-1/3-9); and

(EI) 1.1.4.41 checking, when appropriate, the provision of an appropriate instrument for measuring the concentration of gas or oxygen in the air together with detailed instructions for its use (SOLAS 74/08 reg.VI/3).

(EI) 1.1.5 For the life-saving appliances and the other equipment of cargo ships for the additional requirements for tankers the survey during construction and after installation should consist of:

(EI) 1.1.5.1 checking the deck foam system, including the supplies of foam concentrate, and testing that the minimum number of jets of water at the required pressure in the fire main is obtained (see (EI) 1.1.3.1) when the system is in operation (SOLAS 74/00 reg.II-2/10.8; FSS Code ch.15) (SOLAS 74/88 reg.II-2/61);

(EI) 1.1.5.2 examining the inert gas system (SOLAS 74/00/14 reg.II-2/4.5.5; FSS Code ch.15) (SOLAS 74/88 reg.II-2/62) and in particular:

(EI) 1.1.5.2.1 examining externally for any sign of gas or effluent leakage;

(EI) 1.1.5.2.2 confirming the proper operation of both inert gas blowers;

(EI) 1.1.5.2.3 observing the operation of the scrubber-room ventilation system;

(EI) 1.1.5.2.4 checking the deck water seal for automatic filling and draining, and the arrangements for protecting the system against freezing;

(EI) 1.1.5.2.5 where a double block and bleed valve is installed, checking the automatic operations of the block and the bleed valves upon loss of power;

(EI) 1.1.5.2.6 where two shut-off valves in series with a venting valve in between are used as non-return devices, checking the automatic operation of the venting valve, and the alarm for faulty operation of the valves;

(EI) 1.1.5.2.7 examining the operation of all remotely operated or automatically controlled valves and, in particular, the flue gas isolating valves;

(EI) 1.1.5.2.8 observing a test of the interlocking feature of soot blowers;

(EI) 1.1.5.2.9 observing that the gas pressure-regulating valve automatically closes when the inert gas blowers are secured;

(EI) 1.1.5.2.10 checking the means for separating the cargo tank not being inerted from the inert gas main;

(EI) 1.1.5.2.11 checking the alarms of the two oxygen sensors positioned in the space or spaces containing the inert gas system;

(EI) 1.1.5.2.12 checking, as far as practicable, the following alarms and safety devices of the inert gas system using simulated conditions where necessary:

(EI) 1.1.5.2.12.1 high oxygen content of gas in the inert gas main;

(EI) 1.1.5.2.12.2 low gas pressure in the inert gas main;

(EI) 1.1.5.2.12.3 low pressure in the supply to the deck water seal;

(EI) 1.1.5.2.12.4 high temperature of gas in the inert gas main; (EI)

1.1.5.2.12.5 low water pressure or low water-flow rate;

(EI) 1.1.5.2.12.6 accuracy of portable and fixed oxygen-measuring equipment by means of calibration gas;

(EI) 1.1.5.2.12.7 high water level in the scrubber; (EI)

1.1.5.2.12.8 failure of the inert gas blowers;

(EI) 1.1.5.2.12.9 failure of the power supply to the automatic control system for the gas regulating valve and to the instrumentation for continuous indication and permanent recording of pressure and oxygen content in the inert gas main;

(EI) 1.1.5.2.12.10 high pressure of gas in the inert gas main;

(EI) 1.1.5.2.13 checking the proper operation of the inert gas system on completion of the checks listed above;

(EI) 1.1.5.3 examining the fixed fire-fighting system for the cargo pump-room, confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/00 reg.II-2/10.9; FSS Code chs.5, 6, 7 and 8, as applicable) and, when appropriate, checking the operation of the remote means for closing the various openings;

(EI) 1.1.5.4 examining the protection of the cargo pump-rooms and confirming that the installation tests have been satisfactorily completed (SOLAS 74/00 reg.II-2/4.5.10) (SOLAS 74/88 regs.II-2/55 to 58)*;*

(EI) 1.1.5.5 examining, for all tankers, the arrangements for cargo tank protection, (SOLAS 74/00/10/15 regs.II-2/4.5.3, 4.5.6 and 10.8; FSS Code chs.14 and 15) (SOLAS 74/88 regs.II-2/60 and 62);

(EI) 1.1.5.6 checking, for all tankers, the provision of at least one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, together with a sufficient set of spares, and suitable means for the calibration of these instruments (SOLAS 74/10 reg.II-2/4.5.7.1);

(EI) 1.1.5.7 examining the arrangements for gas measurement in double hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 74/10 reg.II-2/4.5.7.2); and

(EI) 1.1.5.8 examining, for oil tankers of 20,000 tonnes deadweight and above, the fixed hydrocarbon gas detection system for measuring hydrocarbon gas concentrations in all ballast tanks and void spaces of double hull and double bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks, and confirming that the installation tests have been satisfactorily completed

SOLAS 74/10 reg.II-2/4.5.7.3 and FSS Code ch.16).

(EI) 1.1.6 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code, the survey during construction and after installation should consist of:

(EI) 1.1.6.1 examining the arrangements for fire protection and fire extinction (IGF Code ch.11);

(EI) 1.1.6.2 examining the fire pump capacity and working pressure in relation to water spray system, if the water spray system is part of the fire main system (IGF Code para.11.4.1);

(EI) 1.1.6.3 examining the isolating valves of the fire main, when the fuel storage tank(s) is located on the open deck (IGF Code para.11.4.2);

(EI) 1.1.6.4 examining the water spray system arrangement for fuel storage tanks(s) on open deck including remote operation (IGF Code para.11.5);

(EI) 1.1.6.5 examining the fixed dry chemical powder fire-extinguishing system for the bunkering station area (IGF Code para.11.6.1);

(EI) 1.1.6.6 examining the portable dry powder extinguisher (IGF Code para.11.6.2); and

(EI) 1.1.6.7 examining the fixed fire detection and alarm system (IGF Code para.11.7).

(EI) 1.1.7 For the life-saving appliances and the other equipment of cargo ships the check that the required documentation has been placed on board should consist of:

(EI) 1.1.7.1 confirming that the fire control plans are permanently exhibited or, alternatively, emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/00 reg.II-2/15.2.4) (SOLAS 74/88 reg.II-2/20);

(EI) 1.1.7.2 confirming that maintenance plans have been provided (SOLAS 74/00 regs.II-2/14.2.2 and 14.4);

(EI) 1.1.7.3 confirming that the training manuals and the fire safety operational booklets have been provided (SOLAS 74/00/14 regs.II-2/15.2.3, 16.2 and 16.3);

(EI) 1.1.7.4 confirming that, where applicable, the approved documentation for the alternative design and arrangement is on board (SOLAS 74/00/06 regs.II-2/17 and III/38);

(EI) 1.1.7.5 confirming, where appropriate, that the ship is provided with a document indicating compliance with the special requirement for carrying dangerous goods (SOLAS 74/00/08, reg.II-2/19.4) (SOLAS 74/88 reg.II-2/54(3));

(EI)	1.1.7.6	confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places and that they are in a language understood by the persons on board (SOLAS 74/00/17 regs.III/8 and 37);
(EI)	1.1.7.7	confirming that ship-specific plans and procedures for recovery of persons from the water have been provided (SOLAS 74/12 reg.III/17-1);
(EI)	1.1.7.8	confirming that the training manual and training aids for the life-saving appliances have been provided and are available in the working language of the ship (SOLAS 74/00 reg.III/35);
(EI)	1.1.7.9	confirming that the instructions for onboard maintenance of the life-saving appliances have been provided (SOLAS 74/88 reg.III/36);
(EI)	1.1.7.10	confirming that a table or curve of residual deviations for the magnetic compass has been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/00 reg.V/19);
(EI)	1.1.7.11	checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/00 reg.V/16);
(EI)	1.1.7.12	checking that records are provided, identifying any pilot ladders placed into service (SOLAS 74/10 reg.V/23.2.4);
(EI)	1.1.7.13	checking that the charts and nautical publications necessary for the intended voyage are available and have been updated (SOLAS 74/88 reg.V/27);
(EI)	1.1.7.14	checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided (SOLAS 74/00/02 reg.V/21);
(EI)	1.1.7.15	checking that arrangements are provided to maintain records of navigational activities and daily reporting (SOLAS 74/00/03 reg.V/28);
(EI)	1.1.7.16	checking that an illustrated table describing the life-saving signals to be used by ships, aircraft or persons in distress is available (SOLAS 74/00 reg.V/29); and
(EI)	1.1.7.17	confirming that a continuous synopsis record is provided (SOLAS 74/02 reg.XI-1/5).
(EI)	1.1.8	For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for tankers the check that the required documentation has been placed on board should consist of:
(EI)	1.1.8.1	confirming, when appropriate, that the instruction manuals for the inert gas system have been provided (FSS Code ch.15 paragraph 2.2.5) (SOLAS 74/88 reg.II-2/62.21); and
(EI)	1.1.8.2	confirming that the operating and maintenance instructions for the fixed hydrocarbon gas detection system are provided (SOLAS 74/10 reg.II-2/4.5.7.3 and FSS Code ch.16).

(EI) 1.1.9 For the life-saving appliances and the other equipment of cargo ships the completion of the initial survey should consist of:

(EI) 1.1.9.1 after a satisfactory survey, the Cargo Ship Safety Equipment Certificate and its associated Record of Equipment (Form E) should be issued.

(EA) **1.2** **Annual surveys** – see part "General" section 4.2.

(EA) 1.2.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:

(EA) 1.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(EA) 1.2.1.2 checking, as appropriate, the validity of the Polar Ship Certificate;

(EA) 1.2.1.3 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(EA) 1.2.1.4 checking the validity of the International Ship Security Certificate;

(EA) 1.2.1.5 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(EA) 1.2.1.6 checking the validity of the International Oil Pollution Prevention Certificate;

(EA) 1.2.1.7 checking the certificates of class, if the ship is classed with a classification society;

(EA) 1.2.1.8 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(EA) 1.2.1.9 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(EA) 1.2.1.10 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(EA) 1.2.1.11 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(EA) 1.2.1.12 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(EA) 1.2.1.13 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(EA) 1.2.1.14 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(EA) 1.2.1.15 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(EA) 1.2.1.16 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(EA) 1.2.1.17 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(EA) 1.2.1.18 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(EA) 1.2.1.19 checking the manning and supervision of survival craft (SOLAS 74/00 reg.III/10);

(EA) 1.2.1.20 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 74/00/06 regs.II-2/17 and III/38);

(EA) 1.2.1.21 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(EA) 1.2.1.22 confirming that the fire control plans are permanently exhibited or, alternatively, that emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/00 reg.II-2/15.2.4) (SOLAS 74/88 reg.II-2/20);

(EA) 1.2.1.23 confirming that the maintenance plans have been provided (SOLAS 74/00 regs.II-2/14.2.2 and 14.4);

(EA) 1.2.1.24 confirming that the training manuals and the fire safety operational booklets have been provided (SOLAS 74/00/14 regs.II-2/15.2.3, 16.2 and 16.3);

(EA) 1.2.1.25 checking whether any fire has occurred on board necessitating the operation of the fixed fire-extinguishing systems or the portable fire extinguishers since the last survey;

(EA) 1.2.1.26 checking, when appropriate, that the ship is provided with a document indicating compliance with the special requirements for carrying dangerous goods (SOLAS 74/00/08 reg.II-2/19.4) (SOLAS 74/88 reg.II-2/54(3));

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(EA) 1.2.1.27 confirming, when appropriate, that there is a special list, manifest or stowage plan for the carriage of dangerous goods (SOLAS 74/88 reg.VII/5(3));

(EA) 1.2.1.28 confirming, when appropriate, that the instruction manuals for the inert gas system have been provided and checking from the records of the pressure and oxygen content that the inert gas system is being operated correctly (FSS Code ch.15) (SOLAS 74/88 reg.II-2/62);

(EA) 1.2.1.29 confirming that, where applicable, a factual statement has been provided on board by the lifeboat release and retrieval system manufacturer or one of their representatives that confirms the successful completion of the overhaul examination of an existing lifeboat release and retrieval system found to be compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code, or, alternatively, that a statement of acceptance of the installation of a replacement release and retrieval system to an existing lifeboat is available (SOLAS 74/11 reg.III/1.5; LSA Code section 4.4.7.6);

(EA) 1.2.1.30 checking that logbook entries are being made (SOLAS 74/00/12 regs.III/19 and 20) and in particular:

(EA) 1.2.1.30.1 the date when the last full muster of the crew for boat and fire drill took place, and the date when the last enclosed space entry and rescue drills took place;

(EA) 1.2.1.30.2 the records indicating that the lifeboat equipment was examined at that time and found to be complete;

(EA) 1.2.1.30.3 the last occasion when the lifeboats were swung out and when each one was lowered into the water;

(EA) 1.2.1.30.4 the records indicating that crew members have received the appropriate onboard training;

(EA) 1.2.1.30.5 the records indicating that on voyages where passengers are scheduled to be on board for more than 24 h, musters of newly embarked passengers have taken place prior to or immediately upon departure;

(EA) 1.2.1.31 confirming that the training manual and training aids for the life-saving appliances are available on board in the working language of the ship (SOLAS 74/00 reg.III/35);

(EA) 1.2.1.32 confirming that the checklist and instructions for onboard maintenance of the life-saving appliances are on board (SOLAS 74/00 reg.III/36);

(EA) 1.2.1.33 confirming that a table or curve of residual deviations for the magnetic compass has been provided, the compass deviation book has been properly maintained and a diagram of the radar installations shadow sectors is displayed (SOLAS 74/00 reg.V/19);

(EA) 1.2.1.34 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/00 reg.V/16);

(EA) 1.2.1.35 checking that nautical charts and nautical publications necessary for the intended voyage are available and have been updated, and, where electronic systems are used, the required backup system is provided (SOLAS 74/00 regs.V/19 and 27);

(EA) 1.2.1.36 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided (SOLAS 74/00/02 reg.V/21);

(EA) 1.2.1.37 checking that records are maintained identifying any pilot ladders placed into service and any repair effected (SOLAS 74/10 reg.V/23.2.4);

(EA) 1.2.1.38 checking that an illustrated table describing the life-saving signals to be used by ships, aircraft or persons in distress is available (SOLAS 74/00 reg.V/29);

(EA) 1.2.1.39 checking that records of navigational activities and daily reporting have been maintained (SOLAS 74/00/03 reg.V/28);

(EA) 1.2.1.40 confirming that a continuous synopsis record is provided (SOLAS 74/02 reg.XI-1/5); and

(EA) 1.2.1.41 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(EA) 1.2.2 For the life-saving appliances and the other equipment of cargo ships the annual survey should consist of:

(EA) 1.2.2.1 examining the fire pumps, fire main, hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship while the required pressure is maintained in the fire main (SOLAS 74/00/14 reg.II-2/10.2; FSS Code chs.2 and 12) (SOLAS 74/88 regs.II-2/4 and 19);

(EA) 1.2.2.2 for ships designed to carry containers on or above the weather deck, as applicable, examining the water mist lance and, as appropriate, the mobile water monitors and all necessary hoses, fittings and required fixing hardware (SOLAS 74/00/14 reg.II-2/10.7.3);

(EA) 1.2.2.3 checking the provision and randomly examining the condition of the portable and non-portable fire extinguishers (SOLAS 74/00 reg.II-2/10.3; FSS Code ch.4) (SOLAS 74/88 reg.II-2/6);

(EA) 1.2.2.4 confirming that the fire-fighters' outfits including their self-contained compressed air breathing apparatus and emergency escape breathing devices (EEBDs) are complete and in good condition, that the cylinders, including the spare cylinders, of any required self-contained breathing apparatus are suitably charged, and that onboard means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used are provided, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (SOLAS 74/00/12 regs.II-2/10.10, 13.3.4, 13.4.3 and 15.2.2; FSS Code ch.3) (SOLAS 74/88 reg.II-2/17) (BCH Code, ch.III, part E);

(EA) 1.2.2.5 checking the operational readiness and maintenance of fire-fighting systems (SOLAS 74/00 reg.II-2/14) (SOLAS 74/88/91 reg.II-2/21);

(EA) 1.2.2.6 examining the fixed fire-fighting system for the machinery, cargo, vehicle, special category and ro-ro spaces, as appropriate, and confirming that its means of operation is clearly marked (SOLAS 74/00/12/14 regs.II-2/10.4, 10.5, 10.7.1, 10.7.2 and 20.6.1; FSS Code chs.5 to 7) (SOLAS 74/88 regs.II-2/7 and 53);

(EA) 1.2.2.7 examining the fire-extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power-operated and other doors, the stopping of ventilation and boiler forced and induced draught fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/00/12/14/16 regs.II-2/5.2, 8.3, 9.5 and 10.5) (SOLAS 74/88 regs.II-2/7 and 11)

(EA) 1.2.2.8 checking that fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms, where applicable, are provided with two separate controls, one for opening of the gas piping and one for discharging the gas from the storage container,

each of them located in a release box clearly identified for the particular space (SOLAS 74/08 reg.II-2/10.4.1.5);

(EA) 1.2.2.9 examining, as far as possible, and testing, as feasible, any fire detection and alarm system and any sample extraction smoke detection system (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.1, 7.5.5, 19.3.3 and 20.4; FSS Code chs.9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);

(EA) 1.2.2.10 examining the fire-extinguishing systems for spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces (SOLAS 74/00 regs.II-2/10.6.3 and 10.6.4; FSS Code chs.5 to 7) (SOLAS 74/88 reg.II-2/18.7) (BCH

Code ch.III, part E);

(EA) 1.2.2.11 examining the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8);

(EA) 1.2.2.12 examining the arrangements for oil fuel, lubricating oil and other flammable oils and testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.2.3.4) (SOLAS 74/88 reg.II-2/15.2.5);

(EA) 1.2.2.13 examining and testing of the general emergency alarm system (SOLAS 74/88 reg.III/20);

(EA) 1.2.2.14 examining the fire protection arrangements in cargo, vehicle and ro-ro spaces, including the fire safety arrangements for vehicle carriers

carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo, as applicable, and confirming,

as far as practicable and as appropriate, the operation of the means of control provided for closing the various openings (SOLAS 74/00/14 regs.II-2/10.7.1, 10.7.2, 20.2.1, 20.3, 20.6.2, 20-1.2.1, 20-1.3, and 20-1.4) (SOLAS 74/88 reg.II-2/53);

(EA) 1.2.2.15 examining and testing the portable gas detectors suitable for the detection of the gas fuel, for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo (SOLAS 74/00/14 regs.II-2/20-1.2 and 20-1.5);

(EA) 1.2.2.16 examining, where applicable, the alternative design and arrangements for fire safety or life-saving appliances and arrangements, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 74/00/06 regs.II-2/17 and III/38);

(EA) 1.2.2.17 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, the ventilation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/00/08 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4)) (SOLAS 74/88 reg.II-2/54);

(EA) 1.2.2.18 checking that emergency instructions are available for each person on board, that copies of the suitably updated muster list are posted in conspicuous places, and that they are in a language understood by all persons on board, and confirming that there are posters or signs in the vicinity of survival craft and their launching stations (SOLAS 74/00/17 regs.III/8, 9 and 37);

(EA) 1.2.2.19 checking that the life-saving appliances are of an international or vivid reddish orange, or a comparably highly visible colour on all parts where this will assist detection at sea (LSA Code section 1.2.2.6);

(EA) 1.2.2.20 examining each survival craft, including its equipment and, when fitted, the on-load release mechanism and hydrostatic lock and, for inflatable liferafts, the hydrostatic release unit and float-free arrangements; checking that the hand-held flares are not out of date (SOLAS 74/00 regs.III/16, 20 and 31; LSA Code sections 2.5, 3.1 to 3.3, 4.1.5, 4.4.7 and 4.4.8);

(EA) 1.2.2.21 for liferafts provided for easy side-to-side transfer, verifying that they are less than 185 kg (SOLAS 74/00 reg.III/31.1);

(EA) 1.2.2.22 checking that the falls used in launching appliances have been periodically inspected and have been renewed as necessary in the past five years (SOLAS 74/00 reg.III/20);

(EA) 1.2.2.23 examining the embarkation arrangements and launching appliances for each survival craft; each lifeboat should be lowered to the embarkation position or, if the stowage position is the embarkation position, lowered a short distance and, if practicable, one of the survival craft should be lowered to the water; the operation of the launching appliances for davit-launched liferafts should be demonstrated (SOLAS 74/00 regs.III/11, 12, 13, 16, 20 and 31; LSA Code section 6.1);

(EA) 1.2.2.24 checking that a thorough examination of launching appliances, including the dynamic testing of the winch brake, and servicing of lifeboat and rescue boat on-load release gear, including fast rescue boat release gear, free-fall lifeboat release systems and davit-launched liferaft automatic release hooks, and that a thorough examination and operational test of lifeboat and rescue boat including fast rescue boat,

has been carried out in accordance with the *Requirements for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear* (resolution MSC.402(96)),. The operational testing of free-fall lifeboat release systems shall be performed either by free-fall launch with only the operating crew on board or by a test without launching the eboat carried out in accordance with the *Requirements for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear* (SOLAS 74/00/12/16 reg.III/ 20.11);

(EA) 1.2.2.25 examining each rescue boat, including its equipment; for inflatable rescue boats, confirming that they are stowed in a fully inflated condition (SOLAS 74/88 reg.III/14 and 31; LSA Code sections 2.5 and 5.1);

(EA) 1.2.2.26 confirming that there are posters or signs in the vicinity of the survival craft, their launching stations and containers, brackets, racks and other similar stowage locations for life-saving equipment (SOLAS 74/00 regs.III/9 and 20);

(EA) 1.2.2.27 examining the embarkation and recovery arrangements for each rescue boat; if practicable, the rescue boat(s) should be lowered to the water and its recovery demonstrated (SOLAS 74/00 regs.III/14, 17 and 31; LSA Code section 6.1);

(EA) 1.2.2.28 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;

(EA) 1.2.2.29 examining and checking the operation of two-way VHF radiotelephone apparatus[1] and search and rescue locating devices (SOLAS 74/88/08 reg.III/6);

(EA) 1.2.2.30 examining the line-throwing appliance and checking that its rockets and the ship's distress signals are not out of date, and examining and checking the operation of onboard communications equipment and the general emergency alarm system (SOLAS 74/00 regs.II-2/12.2 and III/6 and 18; LSA Code sections 3.1, 7.1 and 7.2);

(EA) 1.2.2.31 examining the provision, disposition, stowage and condition of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejacket[2] and their whistles and lights, immersion suits and anti-exposure suits and checking that their associated batteries are not out of date (SOLAS 74/88/06 regs.III/7 and 32, LSA Code sections 2.1 to 2.5);

(EA) 1.2.2.32 checking that immersion suits designed to be worn in conjunction with a lifejacket are suitably marked (LSA Code section 2.3.1);

[1] Expired primary batteries, which complied with the requirements of paragraph 12.6 of *Revised recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.149 (77)), could be used for no other purpose than to examine and check the operation of two-way VHF radiotelephone apparatus.

[2] SOLAS regulation III/7.2.1.5 should be considered.

(EA) 1.2.2.33 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 regs.II-1/42 or 43 and III/11);

(EA) 1.2.2.34 checking that the required navigation lights, shapes and sound signalling equipment are in order (COLREG 1972, rules 20 to 24, 27 to 30 and 33);

(EA) 1.2.2.35 checking that the following items of navigation equipment are in working order, as appropriate: daylight signalling lamp, magnetic compass, transmitting heading device, gyro compass, gyro compass repeaters, radar installation(s), electronic plotting aid, automatic tracking aid(s) or automatic radar plotting aid(s), echo-sounding device, speed and distance measuring device(s), rudder angle indicator, propeller rate of revolution indicator, variable-pitch propeller pitch and operational mode indicator, rate-of-turn indicator, heading or track control system, Global Navigation Satellite System (GNSS) receiver, terrestrial radio navigation system and sound reception system, means of communication with emergency steering position, a pelorus or compass bearing device, means for correcting heading and bearings, BNWAS as applicable and ECDIS including backup arrangements, as applicable; items that cannot be checked with the ship in port should be verified from records (SOLAS 74/00/09/13 reg.V/19);

(EA) 1.2.2.36 checking that the International Code of Signals is available (SOLAS 74/00 reg.V/21);

(EA) 1.2.2.37 checking the rotational deployment of the marine evacuation system (MES) (SOLAS 74/88 reg.III/20.8.2; LSA Code section 6.2.2.2);

(EA) 1.2.2.38 checking the provision, specification, operation and annual performance test of the voyage data recorder, where fitted (SOLAS 74/00/04 reg.V/20);

(EA) 1.2.2.39 checking the provision and operation of the automatic identification system, where fitted, and whether the annual test has been carried out and a copy of the test report is on board (SOLAS 74/00/04/10 regs.V/18.9 and 19);

(EA) 1.2.2.40 checking that a valid conformance test report of the long-range identification and tracking system is available on board, where fitted (SOLAS 74/04 reg.V/19-1);

(EA) 1.2.2.41 checking the provision and specification of the pilot ladders and pilot transfer arrangements (SOLAS 74/00/10 reg.V/23);

(EA) 1.2.2.42 checking that the means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders, are in satisfactory condition, as applicable (SOLAS 74/08 reg.II-1/3-9);

(EA) 1.2.2.43 checking, when appropriate, the provision of an appropriate instrument for measuring the concentration of gas or oxygen in the air together with detailed instructions for its use (SOLAS 74/08 reg.VI/3); and

(EA) 1.2.2.44 confirming that ship-specific plans and procedures for recovery of persons from the water have been provided (SOLAS 74/12 reg.III/17-1).

(EA) 1.2.3 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for tankers the annual survey should consist of:

(EA) 1.2.3.1 checking the deck foam system, including the supplies of foam concentrate and testing that the minimum number of jets of water at the required pressure in the fire main is obtained (see (EA) 1.2.2.1) when the system is in operation (SOLAS 74/00 reg.II-2/10.8; FSS Code ch.14) (SOLAS 74/88 reg.II-2/61);

(EA) 1.2.3.2 examining the inert gas system (SOLAS 74/00/14 reg.II-2/4.5.5; FSS Code ch.15) (SOLAS 74/88 reg.II-2/62), and in particular:

(EA) 1.2.3.2.1 examining externally for any sign of gas or effluent leakage;

(EA) 1.2.3.2.2 confirming the proper operation of both inert gas blowers;

(EA) 1.2.3.2.3 observing the operation of the scrubber-room ventilation system;

(EA) 1.2.3.2.4 checking the deck water seal for automatic filling and draining, and the arrangements for protecting the system against freezing;

(EA) 1.2.3.2.5 where a double block and bleed valve is installed, checking the automatic operations of the block and the bleed valves upon loss of power;

(EA) 1.2.3.2.6 where two shut-off valves in series with a venting valve in between are used as non-return devices, checking the automatic operation of the venting valve, and the alarm for faulty operation of the valves;

(EA) 1.2.3.2.7 examining the operation of all remotely operated or automatically controlled valves and, in particular, the flue gas isolating valves;

(EA) 1.2.3.2.8 observing a test of the interlocking feature of soot blowers;

(EA) 1.2.3.2.9 observing that the gas pressure regulating valve automatically closes when the inert gas blowers are secured;

(EA) 1.2.3.2.10 checking the means for separating the cargo tank not being inerted from the inert gas main;

(EA) 1.2.3.2.11 checking the alarms of the two oxygen sensors positioned in the space or spaces containing the inert gas system;

(EA) 1.2.3.2.12 checking, as far as practicable, the following alarms and safety devices of the inert gas system using simulated conditions where necessary:

(EA) 1.2.3.2.12.1 high oxygen content of gas in the inert gas main;

(EA) 1.2.3.2.12.2 low gas pressure in the inert gas main;

(EA) 1.2.3.2.12.3 low pressure in the supply to the deck water seal;

(EA) 1.2.3.2.12.4 high temperature of gas in the inert gas main;

(EA) 1.2.3.2.12.5 low water pressure or low water-flow rate;

(EA) 1.2.3.2.12.6 accuracy of portable and fixed oxygen-measuring equipment by means of calibration gas;

(EA) 1.2.3.2.12.7 high water level in the scrubber;

(EA) 1.2.3.2.12.8 failure of the inert gas blowers;

(EA) 1.2.3.2.12.9 failure of the power supply to the automatic control system for the gas regulating valve and to the instrumentation for continuous indication and permanent recording of pressure and oxygen content in the inert gas main;

(EA) 1.2.3.2.12.10 high pressure of gas in the inert gas main;

(EA) 1.2.3.3 checking, when practicable, the proper operation of the inert gas system on completion of the checks listed above (FSS Code ch.15) (SOLAS 74/88 reg.II-2/62);

(EA) 1.2.3.4 examining the fixed fire-fighting system for the cargo pump-rooms (SOLAS 74/00 reg.II-2/10.9) (SOLAS 74/88 reg.II-2/63) and confirming, as far as practicable and when appropriate, the operation of the remote means for closing the various openings;

(EA) 1.2.3.5 checking for all tankers the provision of at least one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, together with a sufficient set of spares, and suitable means for the calibration of these instruments (SOLAS 74/10 reg.II-2/4.5.7.1);

(EA) 1.2.3.6 examining the arrangements for gas measurement in double hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 74/10 reg.II-2/4.5.7.2);

(EA) 1.2.3.7 examining, as far as possible, and testing the fixed hydrocarbon gas detection system (SOLAS 74/10 reg.II-2/4.5.7.3 and FSS Code ch.16);

(EA) 1.2.3.8 checking the condition and operation of water spray and air supply systems that are in totally enclosed lifeboats and have self-contained air support systems (LSA Code sections 4.4 and 4.6 to 4.9);

(EA) 1.2.3.9 checking the protection of the cargo pump-room (SOLAS 74/00 reg.II-2/4.5.10), and in particular:

(EA) 1.2.3.9.1 checking temperature sensing devices for bulkhead glands and alarms;

(EA) 1.2.3.9.2 checking the interlock between lighting and ventilation;

(EA) 1.2.3.9.3 checking the gas detection system; and

(EA) 1.2.3.9.4 checking bilge level monitoring devices and alarms.

(EA) 1.2.4 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code, the annual survey should consist of:

(EA) 1.2.4.1 examining the arrangements for fire protection and fire extinction (IGF Code ch.11);

(EA) 1.2.4.2 examining the fire pump capacity and working pressure in relation to the water spray system, if the water spray system is part of the fire main system (IGF Code para.11.4.1);

(EA) 1.2.4.3 examining the isolating valves of the fire main, when the fuel storage tank(s) is located on the open deck (IGF Code para.11.4.2);

(EA) 1.2.4.4 examining the water spray system for cooling, fire protection and crew protection (IGF Code para.11.5);

(EA) 1.2.4.5 examining the water spray system arrangement for fuel storage tanks(s) on open deck including remote operation (IGF Code para.11.5);

(EA) 1.2.4.6 examining the fixed fire detection and alarm system (IGF Code para.11.7);

(EA) 1.2.4.7 examining the fixed dry chemical powder fire-extinguishing system for the bunkering station area (IGF Code para.11.6.1); and

(EA) 1.2.4.8 examining the portable dry powder extinguisher (IGF Code para.11.6.2).

(EA) 1.2.5 For the life-saving appliances and the other equipment of cargo ships the completion of the annual survey should consist of:

(EA) 1.2.5.1 after a satisfactory survey, the Cargo Ship Safety Equipment Certificate should be endorsed; and

(EA) 1.2.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(EP) **1.3** **Periodical surveys** – see part "General" section 4.4.

(EP) 1.3.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:

(EP) 1.3.1.1 the provisions of (EA) 1.2.1.

(EP) 1.3.2 For the life-saving appliances and the other equipment of cargo ships the periodical survey should consist of:

(EP) 1.3.2.1 the provisions of (EA) 1.2.2;

(EP) 1.3.2.2 confirming, during the examination of the fixed fire-fighting system for the machinery, cargo, vehicle, special category and ro-ro spaces, that, as appropriate, any foam compounds and the CO_2 capacity have been checked and that the distribution pipework has been proved clear (SOLAS 74/00/12/14 regs.II-2/10.4, 10.5, 10.7.1, 10.7.2 and 20.6.1; FSS Code chs.5 to 7) (SOLAS 74/88 regs.II-2/7 and 53);

(EP) 1.3.2.3 testing the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power-operated and other doors, the stopping of ventilation and boiler forced and induced draught fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/00/14 regs.II-2/5.2, 8.3, 9.5 and 10.5) (SOLAS 74/88 reg.II-2/11);

(EP) 1.3.2.4 testing any fire detection and alarm system and any sample extraction smoke detection system (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.5, 19.3.3 and 20.4; FSS Code chs.9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);

(EP) 1.3.2.5 testing, as feasible, the fire-extinguishing system for spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces (SOLAS 74/00 regs.II-2/10.6.3 and 10.6.4; FSS Code chs.5 to 7) (SOLAS 74/88 reg.II-2/18.7);

(EP) 1.3.2.6 testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.2.3.4) (SOLAS 74/88 reg.II-2/15.2.5);

(EP) 1.3.2.7 testing the operation of the means of control provided for closing the various openings for the cargo, vehicle, special category and ro-ro spaces (SOLAS 74/00/14 regs.II-2/5.2 and 20.3) (SOLAS 74/88 reg.II-2/53); and

(EP) 1.3.2.8 testing, as feasible, the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8).

(EP) 1.3.3 For the life-saving appliances and the other equipment for the additional requirements for tankers the periodical survey should consist of:

(EP) 1.3.3.1 the provisions of (EA) 1.2.3; and

(EP) 1.3.3.2 confirming during the examination of the fixed fire-fighting system for the cargo pump-rooms that, as appropriate, any foam compounds have been checked and that the distribution pipework has been proved clear (SOLAS 74/00 reg.II-2/10.9; FSS Code chs.5 to 7) (SOLAS 74/88 reg.II-2/63) and checking the operation of the remote means for closing the various openings.

(EP) 1.3.4 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code, the periodical survey should consist of:

(EP) 1.3.4.1 the provisions of (EA) 1.2.4.

(EP) 1.3.5 For the life-saving appliances and the other equipment of cargo ships the completion of the periodical survey should consist of:

(EP) 1.3.5.1 after a satisfactory survey, the cargo Ship Safety Equipment Certificate should be endorsed; and

(EP) 1.3.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(ER) **1.4** **Renewal surveys** – see part "General" section 4.5

(ER) 1.4.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:

(ER) 1.4.1.1 the provisions of (EA) 1.2.1, except for the validity of the Cargo Ship Safety Equipment Certificate.

(ER) 1.4.2 For the life-saving appliances and the other equipment of cargo ships the renewal survey should consist of:

(ER) 1.4.2.1 the provisions of (EP) 1.3.2; and

(ER) 1.4.2.2 for ships designed to carry containers on or above the weather deck, as applicable, testing that the mobile water monitors can be securely fixed to the ship structure ensuring safe and effective operation, and testing that the mobile water monitor jets reach the top tier of containers with all required monitors and water jets from fire hoses operated simultaneously (SOLAS 74/00/14 reg.II-2/10.7.3).

(ER) 1.4.3 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for tankers the renewal survey should consist of:

(ER) 1.4.3.1 the provisions of (EP) 1.3.3; and

(ER) 1.4.3.2 examining the deck water seal for the inert gas system internally and checking the condition of the non-return valve (FSS Code ch.15, paragraphs 2.2.3.1 and 2.3.1.6.2) (SOLAS 74/88 reg.II-2/62).

(ER) 1.4.4 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code, the renewal survey should consist of:

(ER) 1.4.4.1 the provisions of (EP) 1.3.4.

(ER) 1.4.5 For the life-saving appliances and the other equipment of cargo ships the completion of the renewal survey should consist of:

(ER) 1.4.5.1 after a satisfactory survey, the Cargo Ship Safety Equipment Certificate should be issued.

(C) **2** **GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE**

(CI) **2.1** **Initial surveys** – see part "General", section 4.1.

(CI) 2.1.1 For the hull, machinery and equipment of cargo ships the examination of plans and designs should consist of:

(CI) 2.1.1.1 examining the plans for the hull (SOLAS 74/88 regs.II-1/11, 12-1, 14, 18 and 19) (SOLAS 74/06/17 regs.II-1/9, 10, 11, 12, 13-1, 15, 15-1, 16 and 16-1);

(CI) 2.1.1.*2* examining plans to verify that bulk carriers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 74/10 reg.II-1/3-10);

(CI) 2.1.1.3 examining the plans for the bilge pumping and drainage systems (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/08/09/17 regs.II-1/35-1 and II-2/20.6.1.4);

(CI) 2.1.1.4 examining the stability information and the damage control plans (SOLAS 74/88/00 regs.II-1/22, 23-1 and 25-8) (SOLAS 74/06/08/17 regs.II-1/5, 5-1 and 19; IS Code chs.1, 2 and 3);

(CI) 2.1.1.5 examining the ballasting arrangements (SOLAS 74/06/17 reg.II-1/20);

(CI) 2.1.1.6 examining the plans for the machinery installation (SOLAS 74/88 regs.II-1/26 to 36);

(CI) 2.1.1.7 examining the plans for the electrical installation (SOLAS 74/88 regs.II-1/40, 41, 43, 44 and 45);

(CI) 2.1.1.8 examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 74/00/15 regs.II-1/55 and II-2/17 and IGF Code, ch.2);

(CI) 2.1.1.9 examining the plans for the periodically unattended machinery spaces (SOLAS 74/00 reg.II-2/4.2.5) (SOLAS 74/88 regs.II-1/46 to 53);

(CI) 2.1.1.10 examining the plans for the structural fire protection, including ventilation systems, in accommodation and service spaces, control stations and machinery spaces and oil fuel and lubricating oil systems (SOLAS 74/00/12/14 regs.II-2/4.2.2, 4.2.2.3, 4.2.2.4, 4.2.2.5, 4.4, 5.2, 5.3.1, 5.3.2, 6.2, 6.3, 7.5.5, 7.7, 8.2, 8.4, 9.2.1, 9.3, 9.5, 9.7.1, 9.7.2, 9.7.3, 9.7.5.2, 9.7.6, 11.2, 11.3, 11.4, 11.5 and 17) (SOLAS 74/88 regs.II-2/42 to 52 (except 45 and 51));

(CI) 2.1.1.11 examining the plans for the structural fire protection, including ventilation systems, in cargo spaces (SOLAS 74/00/15 regs.II-2/5.2, 9.7.1, 9.7.2, 9.7.3, 9.7.6, 11.2, 11.3, 11.5, 19.3.8, 19.3.10, 20.2.1, 20.3, 20-1.2.1, 20-1.3 and 20-1.4) (SOLAS 74/88 regs.II-2/42 to 54);

(CI) 2.1.1.12 examining the plans for the means of escape (SOLAS 74/00/14 regs.II-2/13.2, 13.3.1, 13.3.3, 13.4.2 and 13.6; FSS Code ch.13 paragraph 3) (SOLAS 74/88 reg.II-2/45);

(CI) 2.1.1.13 examining the plans for the arrangements for gaseous fuel for domestic purposes (SOLAS 74/00 reg.II-2/4.3) (SOLAS 74/88 reg.II-2/51);

(CI) 2.1.1.14 examining the arrangements for the openings in the shell plating below the freeboard deck (SOLAS 74/06/17 reg.II-1/15);

(CI) 2.1.1.15 examining the plans for helicopter facilities for ships fitted with such facilities (SOLAS 74/00/17 reg.II-2/18) (SOLAS 74/88 reg.II-2/18.8);

(CI) 2.1.1.16 examining the Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units (SOLAS 74/98/02 reg.VI/5.6);

(CI) 2.1.1.17 checking for the loading booklet for carriage of cargoes in bulk (SOLAS 74/00 reg.VI/7);

(CI) 2.1.1.18 examining the loading instrument for bulk carriers of 150 m in length and upwards (SOLAS 74/97/04 reg.XII/11);

(CI) 2.1.1.19 confirming that bulk carriers, when appropriate, meet the requirements of damage stability and structural strength with its cargo hold(s) flooded, including other structural requirements (SOLAS 74/97/04 regs.XII/3, 4, 5 and 6);

(CI) 2.1.1.20 examining the functionality of bilge well alarms to all cargo holds and conveyor tunnels (SOLAS 74/97/04 reg.XII/9);

(CI) 2.1.1.21 confirming that the ship is constructed in accordance with the requirements of a recognized classification society, or one with equivalent national standards (SOLAS 74/00 reg.II-1/3-1);

(CI) 2.1.1.22 confirming that a corrosion prevention system is fitted, when appropriate, in dedicated seawater ballast tanks arranged in ships and double-side skin spaces arranged in bulk carriers of 150 m in length and upwards (SOLAS 74/04/06 reg.II-1/3-2);

(CI) 2.1.1.23 examining, for oil tankers and bulk carriers when appropriate, the Ship Structure Access Manual (SOLAS 74/00/02/04 reg.II-1/3-6(4));

(CI) 2.1.1.24 for bulk carriers, checking the arrangements for hold, ballast and dry space water level detectors and their audible and visual alarms (SOLAS 74/02 reg.XII/12);

(CI) 2.1.1.25 for bulk carriers, checking the arrangements for availability of draining and pumping systems forward of the collision bulkhead (SOLAS 74/02 reg.XII/13);

(CI) 2.1.1.26 examining the calculation and drawings for the sufficient safe working load of towing and mooring equipment to enable the safe conduct of all towing and mooring operation in normal operation of the ship (SOLAS 74/04 reg.II-1/3-8); and

(CI) 2.1.1.27 checking the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5).

(CI) 2.1.2 For the hull, machinery and equipment of cargo ships, concerning the examination of plans and designs the additional requirements for oil tankers, chemical tankers and gas carriers should consist of:

(CI) 2.1.2.1 examining the plans for the steering gear (SOLAS 74/14 reg.II-1/29);

(CI) 2.1.2.2 examining the plans for the electrical installation (SOLAS 74/00 reg.II-1/43) (SOLAS 74/88 reg.II-1/45);

(CI) 2.1.2.3 examining the plans for the structural fire protection (SOLAS 74/00/15 regs.II-2/1.6, 4.5.1, 4.5.2, 4.5.9, 9.2.4, 9.3, 9.4, 9.5, 9.6.3 and 11.6) (SOLAS 74/88 regs.II-2/55 to 58);

(CI) 2.1.2.4 examining the plans for the cargo tank venting, cargo tank purging and gas freeing and other ventilation arrangements and protection of the cargo tank structure against pressure or vacuum (SOLAS 74/00/15 regs.II-2/4.5.3, 4.5.4, 4.5.6, 4.5.8, 11.6 and 16.3) (SOLAS 74/88 reg.II-2/59);

(CI) 2.1.2.5 examining the plans of access to bow (SOLAS 74/00/04 reg.II-1/3-3);

(CI) 2.1.2.6 examining the plans for emergency towing, for tankers of not less than 20,000 tonnes deadweight (SOLAS 74/00/04 reg.II-1/3-4);

(CI) 2.1.2.7 checking the access to spaces in the cargo area of oil tankers (SOLAS 74/88/92/00 reg.II-1/12-2) (SOLAS 74/04 reg.II-1/3-6); and

(CI) 2.1.2.8 examining plans to verify that oil tankers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 74/10 reg.II-1/3-10).

(CI) 2.1.3 For the hull, machinery and equipment of cargo ships, concerning the examination of plans and designs additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code should consist of:

(CI) 2.1.3.1 examining the plans for the fuel containment systems, control of vapour space of liquefied gas fuel tanks, vapour detection, gauging, loading limits for liquefied gas fuel tanks and other special requirements (IGF Code chs.5, 6, 7, 8 and 15));

(CI) 2.1.3.2 examining the plans for the ship arrangements (IGF Code ch.5);

(CI) 2.1.3.3 examining the plans for piping systems (IGF Code chs.5, 6, 7 and 9);

(CI) 2.1.3.4 examining the plans for the pressure control (IGF Code ch.6);

(CI) 2.1.3.5 examining the plans for the environmental control (IGF Code ch.6);

(CI) 2.1.3.6 examining the plans for machinery installation (IGF Code ch.10);

(CI) 2.1.3.7 examining the plans for fire protection (IGF Code section 11.3);

(CI) 2.1.3.8 examining the plans for the ventilation systems (IGF Code chs.12 and 13);

(CI) 2.1.3.9 examining the plans for the electrical installations (IGF Code chs.12 and 14); and

(CI) 2.1.3.10 examining the plans for the control, monitoring and safety systems (IGF Code ch.15).

(CI) 2.1.4 For the hull, machinery and equipment of cargo ships the survey during construction and after installation should consist of:

(CI) 2.1.4.1 confirming that the collision bulkhead is watertight up to the freeboard deck, that the valves fitted on the pipes piercing the collision bulkhead are operable from above the freeboard deck and that there are no doors,

manholes, ventilation ducts or any other openings(SOLAS 74/88 reg.II-1/11) (SOLAS 74/06 reg.II-1/12).

(CI) 2.1.4.2 confirming in accordance with the survey plan that bulk carriers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 74/10 reg.II-1/3.10);

(CI) 2.1.4.3 confirming that the subdivision bulkheads are constructed and tested as watertight up to the freeboard deck, as applicable (SOLAS 74/88 reg.II-1/14) (SOLAS 74/06/17 reg.II-1/10 and 11);

(CI) 2.1.4.4 confirming that each watertight door has been tested (SOLAS 74/88 reg.II-1/18) (SOLAS 74/06/17 reg.II-1/16);

(CI) 2.1.4.5 confirming that the arrangements for operating any watertight doors are generally in accordance with the requirements for passenger ships and carrying out similar tests (see (PI) 5.1.2.6 to (PI) 5.1.2.8) (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06 reg.II-1/13-1);

(CI) 2.1.4.6 confirming by a hose or flooding test the watertightness of watertight decks and trunks, tunnels and ventilators (SOLAS 74/88 reg.II-1/19) (SOLAS 74/06/17 reg.II-1/16-1);

(CI) 2.1.4.7 checking the ballasting arrangements (SOLAS 74/06/17 reg.II-1/20);

(CI) 2.1.4.8 confirming that each bilge pump and the bilge pumping system provided for each watertight compartment are working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(CI) 2.1.4.9 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(CI) 2.1.4.9.1 examining visually the drainage facilities for blockage or other damage and confirming the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5);

(CI) 2.1.4.10 conducting an inclining test, when this is required (SOLAS 74/88 reg.II-1/22) (SOLAS 74/06/17 reg.II-1/5);

(CI) 2.1.4.11 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected so as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/00/15 reg.II-2/4.2 (except 4.2.2.3.4 relating to remote closing of valves included in safety equipment)) (SOLAS 74/88 regs.II-1/26, 32, 33 and 34) (SOLAS 74/88/06 reg.II-2/15 (except 15.2.5));

(CI) 2.1.4.12 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 reg.II-1/26);

(CI) 2.1.4.13 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 reg.II-1/26);

(CI) 2.1.4.14 confirming that the boilers, all parts of the machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure have been subjected to the appropriate tests, including a pressure test as may be specified in the requirements of the Administration or the classification societies (SOLAS 74/88 reg.II-1/26);

(CI) 2.1.4.15 confirming that means are provided to ensure that the safe speed is not exceeded where there is the risk of machinery overspeeding (SOLAS 74/88 reg.II-1/27);

(CI) 2.1.4.16 confirming that, where practicable, means are provided to protect against overpressure in the parts of main, auxiliary and other machinery that are subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 reg.II-1/27);

(CI) 2.1.4.17 confirming that, when required, crankcase explosion relief devices are fitted to internal combustion engines and that they are arranged so as to minimize the possibility of injury to personnel (SOLAS 74/88 reg.II-1/27);

(CI) 2.1.4.18 confirming that main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could rapidly lead to a complete breakdown, serious damage or explosion (SOLAS 74/88 reg.II-1/27);

(CI) 2.1.4.19 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship[1] (SOLAS 74/88 reg.II-1/28);

(CI) 2.1.4.20 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative[2] (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.21 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88/14 reg.II-1/29);

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[1] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-1/29 and II-1/30* (MSC.1/Circ.1416/Rev.1).

[2] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-1/29 and II-1/30* (MSC.1/Circ.1416/Rev.1).

(CI) 2.1.4.22 confirming that relief valves are fitted to any part of a steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces and that these relief valves are set to a pressure not exceeding the design pressure (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.23 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side in not more than 28 s,* or, where demonstration at the deepest seagoing draught is impracticable, with alternative permissible sea trial loading condition† (SOLAS 74/88 reg.II-1/29);

(CI) 2.1.4.24 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 s with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater,[1] or, where this is impracticable, with an alternative permissible sea trial loading condition[2] (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.25 confirming that the main and auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.26 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units[3] (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.27 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/8814 reg.II-1/29);

(CI) 2.1.4.28 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29);

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[1] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-1/29 and II-1/30* (MSC.1/Circ.1416/Rev.1).

[2] Refer to the *Unified interpretations of SOLAS regulations II-1/29.3 and II-1/29.4* (MSC.1/Circ.1536).

[3] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-1/29 and II-1/30* (MSC.1/Circ.1416/Rev.1).

(CI) 2.1.4.29 confirming that the control system for the auxiliary steering gear in the steering gear compartment and, if this gear is power-operated, from the navigating bridge are operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.30 confirming that the control system for any main and auxiliary steering gear control system operable from the navigating bridge is capable of being brought into operation from a position on the navigating bridge, that means are provided in the steering gear compartment for disconnecting it from the steering gear that it serves, and that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.31 confirming that the electric power circuits and steering gear control systems, together with their associated components, cables and pipes, are separated, as far as practicable, throughout their length (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.32 confirming that the means of communication between the bridge and the steering gear compartment is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position are provided (SOLAS 74/88/14 reg.II-1/29) (SOLAS 74/00 reg.V/19);

(CI) 2.1.4.33 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/88/14 reg.II-1/29) (SOLAS 74/00 reg.V/19);

(CI) 2.1.4.34 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank (to which a contents gauge is fitted) with fixed piping (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.35 confirming that the steering gear compartment is readily accessible, that it is separated, as far as practicable, from machinery spaces and that it is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.4.36 confirming that with electric and electro-hydraulic steering gear the means are provided for indicating on the navigating bridge and at a main machinery control position that the motors are running and that the overload alarm and alarm for the loss of a phase in a three-phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 reg.II-1/30);

(CI) 2.1.4.37 confirming that the main and auxiliary machinery essential for propulsion and the safety of the ship are provided with the effective means for its operation and control (SOLAS 74/88 reg.II-1/31);

(CI) 2.1.4.38 confirming that appropriate means are provided where it is intended that the propulsion machinery should be remotely controlled from the navigating bridge, including, where necessary, the control, monitoring, reporting, alert and safety actions (SOLAS 74/00/02 reg.II-1/31);

(CI) 2.1.4.39 confirming that arrangements to operate main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 reg.II-1/31);

(CI) 2.1.4.40 confirming that, in general, means are provided for manually overriding automatic controls and that a failure does not prevent the use of the manual override (SOLAS 74/88 reg.II-1/31);

(CI) 2.1.4.41 confirming that oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are fitted with the appropriate safety features (SOLAS 74/88 regs.II-1/32, 33 and 34);

(CI) 2.1.4.42 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 reg.II-1/35);

(CI) 2.1.4.43 when appropriate, confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 reg.II-1/36 and SOLAS 74/12/16 reg.II-1/3-12.2); or confirming that the ship was constructed to reduce onboard noise and to protect personnel from noise in accordance with the Code on Noise Levels on board Ships, adopted by resolution MSC.337(91), as amended (SOLAS 74/12/16 reg.II-1/3-12);

(CI) 2.1.4.44 confirming that the engine-room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigating bridge is operating satisfactorily (SOLAS 74/88 reg.II-1/37);

(CI) 2.1.4.45 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily and that appropriate means are provided to any other positions from which the engines are controlled (SOLAS 74/88 reg.II-1/37);

(CI) 2.1.4.46 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 reg.II-1/38);

(CI) 2.1.4.47 confirming that precautions, taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces, are efficient (SOLAS 74/00 reg.II-2/4.2.2.3);

(CI) 2.1.4.48 confirming that the means of ascertaining the amount of oil contained in any oil tank are in good working condition (SOLAS 74/00 reg.II-2/4.2.2.3.5);

(CI) 2.1.4.49 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in good working condition (SOLAS 74/00 reg.II-2/4.2.2.4);

(CI) 2.1.4.50 confirming that forepeak tanks are not intended for carriage of oil fuel, lubrication oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.2.3);

(CI) 2.1.4.51 confirming that the electrical installations, including the main source of power and lighting systems, are installed in accordance with the approved plans (SOLAS 74/88 regs.II-1/40 and 41);

(CI) 2.1.4.52 confirming that a self-contained emergency source of electrical power has been provided and that the appropriate systems are satisfactorily supplied (SOLAS 74/88 reg.II-1/43);

(CI) 2.1.4.53 confirming that the starting arrangements of each emergency generating set are satisfactory (SOLAS 74/88 reg.II-1/44);

(CI) 2.1.4.54 confirming that precautions have been provided against shock, fire and other hazards of electrical origin (SOLAS 74/88 reg.II-1/45);

(CI) 2.1.4.55 confirming that the arrangements for periodically unattended machinery spaces are satisfactory (SOLAS 74/88 regs.II-1/46 to 53) and in particular:

(CI) 2.1.4.55.1 checking the fire precautions and testing alarms, as appropriate;

(CI) 2.1.4.55.2 checking the means for the protection against flooding;

(CI) 2.1.4.55.3 checking the means to control the propulsion from the navigating bridge;

(CI) 2.1.4.55.4 ensuring that a means of vocal communication between the main machinery control room or its control position, as appropriate, and the navigating bridge and engineer officer's accommodation is provided and is effective;

(CI) 2.1.4.55.5 checking that an alarm system is provided with random testing of functions;

(CI) 2.1.4.55.6 checking that means are provided to automatically shut down machinery or boiler operations in the event of serious malfunction, and testing the alarms;

(CI) 2.1.4.55.7 ensuring that special requirements for the machinery, boiler and electrical installations, as appropriate, are provided;

(CI) 2.1.4.56 examining, where applicable, the alternative design and arrangements for machinery or electrical installations or low-flashpoint fuel storage and distribution systems, or fire safety, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 74/00/06/15 regs.II-1/55 and II-2/17 and IGF Code ch.2);

(CI) 2.1.4.57 confirming that all aspects of the structural fire protection, including the ventilation systems, in accommodation and service spaces, control stations and machinery spaces are installed in accordance with the approved plans, testing the operation of fire dampers of ventilation ducts and the means of closing the main inlets and outlets of all ventilation systems and proving that the power ventilation is capable of being

stopped from outside the space served (SOLAS 74/00/12/14 regs.II-2/4.4, 5.2, 5.3.1, 5.3.2, 6.2, 6.3, 7.5.5, 7.7, 8.2, 8.4, 9.2.1, 9.3, 9.4.2, 9.5, 9.7.1, 9.7.2, 9.7.3, 9.7.5.2, 9.7.6, 11.2, 11.3, 11.4 and 11.5) (SOLAS 74/88 regs.II-2/42 to 44, 46 to 50 and 52);

(CI) 2.1.4.58 confirming that all aspects of the structural fire protection, including the ventilation systems, in cargo spaces are installed in accordance with the approved plans, testing the operation of fire dampers of ventilation ducts and the means of closing the main inlets and outlets of all ventilation systems and proving that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/00/15/17 regs.II-2/5.2.1, 9.7.1, 9.7.2, 9.7.3, 9.7.6, 11.2, 11.3, 11.5, 19.3.8, 19.3.10, 20.2.1, 20.3, 20-1.2.1, 20-1.3 and 20-1.4) (SOLAS 74/88 regs.II-2/42 to 44, 46 to 50 and 52 to 54);

(CI) 2.1.4.59 confirming that stairways and ladders are so arranged as to provide a means of escape from all accommodation spaces and from spaces in which the crew is normally employed, other than machinery spaces, to the open deck and thence to the lifeboats and liferafts (SOLAS 74/00 regs.II-2/13.2, 13.3.1, 13.3.3 and13.6; FSS Code ch.13 paragraph 3) (SOLAS 74/88 reg.II-2/45) and in particular that:

(CI) 2.1.4.59.1 at all levels of accommodation there are provided at least two widely separated means of escape from each restricted space or group of spaces;

(CI) 2.1.4.59.2 below the lowest open deck the main means of escape is a stairway (the second being a trunk or a stairway);

(CI) 2.1.4.59.3 above the lowest open deck the means of escape are stairways or doors to an open deck or a combination of them;

(CI) 2.1.4.59.4 the radiotelegraph station has direct access to the open deck or is provided with two means of access or egress, one of which is a porthole or window of sufficient size;

(CI) 2.1.4.60 confirming that two widely separated means of escape and, when appropriate, a fire shelter from the lower part of the space, are provided from each machinery space of Category A and that suitable escape routes are provided from other machinery spaces, and that two means of escape are provided for machinery control rooms and for main workshops located within the machinery space of Category A, as applicable (SOLAS 74/00/14 reg.II-2/13.4.2; FSS Code ch.13 paragraph 3) (SOLAS 74/88 reg.II-2/45);

(CI) 2.1.4.61 examining the arrangements for gaseous fuel for domestic purposes (SOLAS 74/00 reg.II-2/4.3);

(CI) 2.1.4.62 confirming, when appropriate, that all aspects of the helicopter facilities are installed in accordance with the approved plans (SOLAS 74/00/16 reg.II-2/18) (SOLAS 74/88 reg.II-2/18.8);

(CI) 2.1.4.63 confirming that installed materials do not contain asbestos[1] (SOLAS 74/00/09 reg.II-1/3-5);

[1] Refer to the *Unified interpretation of SOLAS regulation II-1/3-5* (MSC.1/Circ.1379 and MSC.1/Circ.1426/Rev.1).

(CI) 2.1.4.64 confirming, for bulk carriers, that dedicated seawater ballast tanks have an efficient corrosion protection system such as hard coating (SOLAS 74/00 reg.II-1/3-2);

(CI) 2.1.4.65 confirming that dedicated seawater ballast tanks arranged in ships and double side skin spaces arranged in bulk carriers of 150 m in length and upward when appropriate have been coated in accordance with resolution MSC.215(82), as amended (SOLAS 74/00/06 reg.II-1/3-2);

(CI) 2.1.4.66 prior to the review of the coating technical file:

(CI) 2.1.4.66.1 checking that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with the Standard;

(CI) 2.1.4.66.2 checking that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet;

(CI) 2.1.4.66.3 checking that the inspector is qualified in accordance with the qualification standards;

(CI) 2.1.4.66.4 checking 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

(CI) 2.1.4.65.5 monitoring the implementation of the coating inspection requirements;

(CI) 2.1.4.67 reviewing the coating technical file (SOLAS 74/00/06/10 regs.II-1/3-2 and II-1/3-11; MSC.215(82), as amended, and MSC.288(87), as amended);

(CI) 2.1.4.68 confirming for oil tankers and bulk carriers, when appropriate, the provision of means of access to cargo and other spaces in accordance with the arrangements in the Ship Structures Access Manual (SOLAS 74/00/02/04 reg.II-1/3-6, SOLAS 74/10 reg.II-1/3-10 and MSC.287(87));

(CI) 2.1.4.69 for bulk carriers, examining and testing the hold, ballast and dry space water level detectors and their audible and visual alarms (SOLAS 74/02 reg.XII/12);

(CI) 2.1.4.70 for bulk carriers, checking the arrangements for availability of draining and pumping systems forward of the collision bulkhead (SOLAS 74/02 reg.XII/13);

(CI) 2.1.4.71 confirming, for bulk carriers, that the loading instrument is on board and functioning (SOLAS 74/97/04 reg.XII/11);

(CI) 2.1.4.72 confirming that the ship's identification number is permanently marked (SOLAS 74/02 reg.XI-1/3);

(CI) 2.1.4.73 confirming that the towing and mooring equipment is properly marked with any restriction associated with its safe operation (SOLAS 74/04 reg.II-1/3-8); and

(CI) 2.1.4.74 confirming, where applicable, that an appropriate portable atmosphere testing instrument or instruments[1] is on board, and that suitable means are provided for the calibration of all such instruments;† [2] and checking the appropriateness of the testing and calibration (SOLAS 74/14 reg.XI-1/7).

(CI) 2.1.5 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for oil tankers the survey during construction and after installation should consist of:

(CI) 2.1.5.1 confirming, when appropriate, that the main steering gear comprises the necessary two or more identical power units and the requisite arrangements to regain steering capability in the event of the prescribed single failure (SOLAS 74/88/14 reg.II-1/29);

(CI) 2.1.5.*2* confirming in accordance with the survey plan that oil tankers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 74/10 reg.II-1/3-10);

(CI) 2.1.5.3 confirming that a hull return system of distribution and earthed distribution system are not used (SOLAS 74/88 reg.II-1/45);

(CI) 2.1.5.4 confirming that all aspects of the location of spaces and the structural fire protection, including the special arrangements when the ship is a combination carrier, are in accordance with the approved plans (SOLAS 74/00/12 regs.II-2/1.6, 4.5.1, 4.5.2, 4.5.9, 9.2.4, 9.3 and 9.6.3) (SOLAS 74/88 regs.II-2/55 to 58);

(CI) 2.1.5.5 confirming that permanent approved gastight lighting enclosures for illuminating cargo pump-rooms, having adequate strength and not impairing the integrity and gas tightness of the bulkheads or decks, are fitted in bulkheads and decks separating cargo pump-rooms and other spaces (SOLAS 74/00 reg.II-2/4.5.2.5) (SOLAS 74/88 reg.II-2/58.5);

(CI) 2.1.5.6 confirming that all aspects of the cargo tank venting, cargo tank purging and gas freeing and other ventilation arrangements and protection of the cargo tank structure against pressure or vacuum are in accordance with the approved plans (SOLAS 74/00/15 regs.II-2/4.5.3, 4.5.4, 4.5.6, 4.5.8 and 11.6) (SOLAS 74/88 regs.II-2/59 and 62.13.1 to 62.13.3);

(CI) 2.1.5.7 confirming that access to bow is arranged in accordance with approved plans (SOLAS 74/00/04 reg.II-1/3-3);

(CI) 2.1.5.8 confirming, for tankers of not less than 20,000 tonnes deadweight, that emergency towing is arranged in accordance with approved plans (SOLAS 74/00/04 reg.II-1/3-4);

[1] Refer to the *Guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces* as required by SOLAS regulation XI-1/7 (MSC.1/Circ.1477).

[2] Refer to the *Unified interpretations of SOLAS regulation XIV/2.2 and paragraphs 1.3.2 and 1.3.6, part I-A of the Polar Code* (MSC.1/Circ.1562)

(CI) 2.1.5.9 confirming, when appropriate, that dedicated seawater ballast tanks have an efficient corrosion protection system such as hard coating (SOLAS 74/00/06 reg.II-1/3-2);

(CI) 2.1.5.10 confirming that all cargo oil tanks in crude oil tankers have either:

(CI) 2.1.5.10.1 been coated in accordance with MSC.288(87), as amended; or

(CI) 2.1.5.10.2 been protected by alternative means of corrosion protection or utilization of approved corrosion-resistant material (steel) in accordance with MSC.289(87) (SOLAS 74/10 reg.II-1/3-11).

(CI) 2.1.6 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for chemical tankers and gas carriers, the survey during construction and after installation should consist of:

(CI) 2.1.6.1 the provisions of (CI) 2.1.5 except (CI) 2.1.5.*2*.

(CI) 2.1.7 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for the ships using natural gas as fuel other than ships covered by the IGC Code, the survey during construction and after installation should consist of:

(CI) 2.1.7.1 confirming that the arrangement of the accommodation, the fuel containment system, service and machinery spaces are in accordance with the approved plans and that control, monitoring and safety systems are satisfactory (IGF Code chs.4, 5, 6, 8, 9 and 15);

(CI) 2.1.7.2 confirming the inert gas system is satisfactory (IGF Code ch.6);

(CI) 2.1.7.3 confirming that the fuel containment systems are arranged and installed in accordance with the approved plans, internally examining the fuel containment systems and ensuring that the appropriate testing is carried out (IGF Code chs.6 and 16);

(CI) 2.1.7.4 examining of machinery installations (IGF Code ch.10);

(CI) 2.1.7.4.1 ventilation systems;

(CI) 2.1.7.4.2 dual-fuel engines;

(CI) 2.1.7.4.3 gas-only engines;

(CI) 2.1.7.4.4 multi-fuel engines;

(CI) 2.1.7.4.5 main and auxiliary boilers;

(CI) 2.1.7.4.6 gas turbines;

(CI) 2.1.7.5 confirming that the fire protection is installed in accordance with the approved plans (IGF Code ch.11.3);

(CI) 2.1.7.6 confirming the ventilation arrangements are satisfactory (IGF Code chs.12 and 13); and

(CI) 2.1.7.7 examining the electrical installations with particular reference to the certified safe type equipment fitted in gas-dangerous spaces and zones (IGF Code chs.12 and 14).

(CI) 2.1.8 For the hull, machinery and equipment of cargo ships the check that the required documentation has been placed on board should consist of:

(CI) 2.1.8.1 confirming that the stability information and the damage control plans and damage control booklets have been provided (SOLAS 74/88 regs.II-1/22 and 23-1) (SOLAS 74/06/17 regs.II-1/5-1 and 19);

(CI) 2.1.8.*2* checking, where applicable, that the noise survey report as required by the Code on Noise Levels on Board Ships is available on board (SOLAS 74/12/16 reg.II-1/3-12);

(CI) 2.1.8.3 confirming that the manoeuvring booklet has been provided and that the manoeuvring information has been displayed on the navigating bridge (SOLAS 74/88 reg.II-1/28);

(CI) 2.1.8.4 confirming that the approved Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units is provided on board (SOLAS 74/98/02 reg.VI/5.6);

(CI) 2.1.8.5 confirming, for oil tankers and bulk carriers when appropriate, that the Ship Structure Access Manual is on board (SOLAS 74/00/02/04 reg.II-1/3-6(4));

(CI) 2.1.8.6 confirming that a set of as-built construction drawings is available on board (SOLAS 74/04 reg.II-1/3-7);

(CI) 2.1.8.7 confirming when appropriate that a coating technical file reviewed by the Administration has been provided on board (SOLAS 74/00/06/10 regs.II-1/3-2 and 3-11);

(CI) 2.1.8.8 checking the provision of a ship-specific emergency towing procedure (SOLAS 74/08 reg.II-1/3-4);

(CI) 2.1.8.9 confirming, for oil tankers and bulk carriers of 150 m in length and above, that the Ship Construction File has been provided (SOLAS 74/10 reg.II-1/3-10 and MSC.290(87));

(CI) 2.1.8.10 confirming, when appropriate, that a technical file verified by the Administration has been provided on board (SOLAS 74/10 reg.II-1/3 11 and MSC.289(87)); and

(CI) 2.1.8.11 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 74/00/06/15 regs.II-1/55 and II-2/17 and IGF Code ch.2).

(CI) 2.1.9 For the hull, machinery and equipment of cargo ships the completion of the initial survey should consist of:

(CI) 2.1.9.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be issued.

(CA) **2.2** **Annual surveys** – see part "General", section 4.2.

(CA) 2.2.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:

(CA) 2.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(CA) 2.2.1.2 checking, as appropriate, the validity of the Polar Ship Certificate;

(CA) 2.2.1.3 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(CA) 2.2.1.4 checking the validity of the International Ship Security Certificate;

(CA) 2.2.1.5 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(CA) 2.2.1.6 checking the validity of the International Oil Pollution Prevention Certificate;

(CA) 2.2.1.7 checking the certificates of class, if the ship is classed with a classification society;

(CA) 2.2.1.8 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(CA) 2.2.1.9 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(CA) 2.2.1.10 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(CA) 2.2.1.11 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(CA) 2.2.1.12 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(CA) 2.2.1.13 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(CA) 2.2.1.14 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(CA) 2.2.1.15 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(CA) 2.2.1.16 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(CA) 2.2.1.17 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(CA) 2.2.1.18 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(CA) 2.2.1.19 checking, where applicable, that the noise survey report as required by the Code on Noise Levels on Board Ships is available on board (SOLAS 74/12/16 reg.II-1/3-12);

(CA) 2.2.1.20 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 74/00/06/15 regs.II-1/55 and II-2/17);

(CA) 2.2.1.21 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(CA) 2.2.1.22 checking the provision of a ship-specific emergency towing procedure (SOLAS 74/08 reg.II-1/3-4);

(CA) 2.2.1.23 confirming that the stability information, including damage stability, where applicable, and the damage control plans and damage control booklets are on board (SOLAS 74/88 regs.II-1/22, 23 and 25) (SOLAS 74/06 regs.II-1/5-1 and 19);

(CA) 2.2.1.24 confirming from the logbook entries, where applicable, that the watertight doors or ramps fitted internally to subdivide large cargo spaces required to be closed during navigation are being kept closed (SOLAS 74/06/17 reg.II-1/24);

(CA) 2.2.1.25 confirming that the manoeuvring booklet is on board and that the manoeuvring information is displayed on the navigating bridge (SOLAS 74/88 reg.II-1/28);

(CA) 2.2.1.26 checking by the logbook entries that the testing and the emergency drills of the steering gear have been carried out (SOLAS 74/00 reg.V/26) (SOLAS 74/88 reg.V/19);

(CA) 2.2.1.27 checking that the routine surveys of the boilers and other pressure vessels, as determined by the Administration, have been carried out as required and that safety devices, such as the boiler safety valves, have been tested;

(CA) 2.2.1.28 checking that, as appropriate, the hull and machinery has been presented for survey in accordance with the continuous survey scheme approved by the Administration or a classification society;

(CA) 2.2.1.29 confirming, when appropriate, that a complete file of the enhanced survey reports and the Condition Evaluation Report are on board;*

(CA) 2.2.1.30 confirming that suitable Material Safety Data Sheets are available on board;

(CA) 2.2.1.31 confirming, for bulk carriers, that the loading/unloading booklet required in SOLAS regulation VI/7.2 is on board (SOLAS 74/97/04 reg.XII/8.1);

(CA) 2.2.1.32 confirming, that bulk carriers of 150 m in length and upwards of single side skin construction designed to carry solid bulk cargoes having a density of 1,780 kg/m^3 and above, constructed before 1 July 1999, have, after the implementation date given in SOLAS 74/94/97 reg.XII/3, sufficient stability and strength to withstand flooding of the foremost cargo hold (SOLAS 74/97/04 regs.XII/3, 4 and 6);

(CA) 2.2.1.33 confirming that approved Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units is on board (SOLAS 74/98/02 reg.VI/5.6);

(CA) 2.2.1.34 confirming that the loading booklet for carriage of cargoes in bulk is on board (SOLAS 74/00 reg.VI/7);

(CA) 2.2.1.35 confirming, for oil tankers and bulk carriers when appropriate, that the Ship Structure Access Manual is on board (SOLAS 74/00/02, reg.II-1/3-6(4));

(CA) 2.2.1.36 confirming that structural alterations performed, if any, have been approved by the classification society and reported on the as-built drawings kept on board (SOLAS 74/04 reg.II-1/3-7);

(CA) 2.2.1.37 confirming, when appropriate, that the coating technical file is available on board and maintained (SOLAS 74/00/06/10 regs.II-1/3-2 and 3-11);

(CA) 2.2.1.38 confirming, when appropriate, that the maintenance of the protective coating is included in the overall ship's maintenance system (SOLAS 74/00/06 reg.II-1/3-2);

(CA) 2.2.1.39 confirming, where appropriate, for crude oil tankers, that a technical file verified by the Administration has been provided on board (SOLAS 74/10 reg.II-1/3-11 and MSC.289(87));

(CA) 2.2.1.40 confirming, for oil tankers and bulk carriers of 150 m in length and above, that the Ship Construction File is available and updated, where applicable [1](SOLAS 74/10 reg.II-1/3-10 and MSC.287(87)); and

(CA) 2.2.1.41 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

[1] Refer to the *International Code on the Guidelines on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CA) 2.2.2 For the hull,[1] machinery and equipment of cargo ships the annual survey should consist of:

(CA) 2.2.2.1 examining, in general and as far as can be seen, the hull and its closing appliances;

(CA) 2.2.2.2 examining the anchoring and mooring equipment as far as can be seen; for ships built after 1 January 2007, confirming that the towing and mooring equipment is properly marked with any restriction associated with its safe operation (SOLAS 74/04 reg.II-1/3-8);

(CA) 2.2.2.3 examining, for bulk carriers of 150 m and above, where appropriate, the ship's structure in accordance with the Ship Construction File, taking into account identified areas that need special attention (SOLAS 74/10 reg.II-1/3-10 and MSC.287(87));

(CA) 2.2.2.4 examining the collision and the other watertight bulkheads as far as can be seen (SOLAS 74/88 regs.II-1/11 and 14) (SOLAS 74/06/17 regs.II-1/10, 11 and 12);

(CA) 2.2.2.5 examining and testing (locally and remotely) all the watertight doors in watertight bulkheads (SOLAS 74/88 reg.II-1/18) (SOLAS 74/06/17 reg.II-1/16);

(CA) 2.2.2.6 examining the arrangements for closing openings in the shell plating below the freeboard deck (SOLAS 74/06/17 reg.II-1/15);

(CA) 2.2.2.7 checking the ballasting arrangements (SOLAS 74/06/17 reg.II-1/20);

(CA) 2.2.2.8 examining each bilge pump and confirming that the bilge pumping system for each watertight compartment is satisfactory (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(CA) 2.2.2.9 confirming that the drainage from enclosed cargo spaces situated on the freeboard deck is satisfactory (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(CA) 2.2.2.9.1 examining visually the drainage facilities for blockage or other damage and confirming the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5);

(CA) 2.2.2.10 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected so as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/00/15 reg.II-2/4.2 (except 4.2.2.3.4 relating to remote closing of valves included in safety equipment)) (SOLAS 74/88 regs.II-1/26, 32, 33 and 34) (SOLAS 74/88/06 reg.II-2/15 (except 15.2.5));

[1] Refer also to the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CA) 2.2.2.11 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 reg.II-1/26);

(CA) 2.2.2.12 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 reg.II-1/26);

(CA) 2.2.2.13 carrying out a general examination of the machinery, the boilers, all steam, hydraulic, pneumatic and other systems and their associated fittings to see whether they are being properly maintained and with particular attention to the fire and explosion hazards (SOLAS 74/88 regs.II-1/26 and 27);

(CA) 2.2.2.14 examining and testing the operation of main and auxiliary steering arrangements, including their associated equipment and control systems (SOLAS 74/88/14 reg.II-1/29);

(CA) 2.2.2.15 confirming that the means of communication between the navigation bridge and steering gear compartment and the means of indicating the angular position of the rudder are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29) (SOLAS 74/00 reg.V/19);

(CA) 2.2.2.16 confirming that with ships having emergency steering positions there are means of relaying heading information and, when appropriate, of supplying visual compass readings to the emergency steering position (SOLAS 74/88/14 reg.II-1/29 and SOLAS 74/00 reg.V/19 or the SOLAS 74/88 reg.V/12 in force prior to 1 July 2002 as appropriate);

(CA) 2.2.2.17 confirming that the various alarms required for hydraulic power-operated, electric and electro-hydraulic steering gears are operating satisfactorily and that the re-charging arrangements for hydraulic power-operated steering gears are being maintained (SOLAS 74/88/14 reg.II-1/29 and SOLAS 74/88 reg.II-1/30);

(CA) 2.2.2.18 examining the means for the operation of the main and auxiliary machinery essential for the propulsion and the safety of the ship, including, when applicable, the means of remotely controlling the propulsion machinery from the navigating bridge (including the control, monitoring, reporting, alert and safety actions) and the arrangements to operate the main and other machinery from a machinery control room (SOLAS 74/88/00/02 reg.II-1/31);

(CA) 2.2.2.19 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 reg.II-1/35);

(CA) 2.2.2.20 when appropriate, confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 reg.II-1/36 and SOLAS 74/12/16 reg.II-1/3-12.2); or confirming that the ship was constructed to reduce onboard noise and to protect personnel from noise in accordance with the Code on Noise Levels on Board Ships, adopted by resolution MSC.337(91), as amended (SOLAS 74/12/16 reg.II-1/3-12);

(CA) 2.2.2.21 confirming that the engine-room telegraph, the second means of communication between the navigation bridge and the machinery space and the means of communication with any other positions from which the engines are controlled are operating satisfactorily (SOLAS 74/88 reg.II-1/37);

(CA) 2.2.2.22 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 reg.II-1/38);

(CA) 2.2.2.23 examining, as far as practicable, visually and in operation, the electrical installations, including the main source of power and the lighting systems (SOLAS 74/88 regs.II-1/40 and 41);

(CA) 2.2.2.24 confirming, as far as practicable, the operation of the emergency source(s) of electrical power including their starting arrangements, the systems supplied and, when appropriate, their automatic operation (SOLAS 74/88 regs.II-1/43 and 44);

(CA) 2.2.2.25 examining, in general, that the precautions provided against shock, fire and other hazards of electrical origin are being maintained (SOLAS 74/88 reg.II-1/45);

(CA) 2.2.2.26 examining the arrangements for periodically unattended machinery spaces (SOLAS 74/88 regs.II-1/46 to 53) and, in particular, the random testing of alarm, automatic and shutdown functions;

(CA) 2.2.2.27 examining, where applicable, the alternative design and arrangements for machinery or electrical installations, low-flashpoint fuel storage and distribution systems, or fire safety, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 74/00/06/15 regs.II-1/55 and II-2/17 and IGF Code ch.2);

(CA) 2.2.2.28 confirming, as far as practicable, that no changes have been made in the structural fire protection, examining any manual and automatic fire doors and proving their operation, testing the fire dampers of ventilation ducts and the means of closing the main inlets and outlets of all ventilation systems and testing the means of stopping power ventilation systems from outside the space served (SOLAS 74/00/12/15/17 regs.II-2/4.4, 5.2, 5.3.1, 5.3.2, 6.2, 6.3, 7.5.5, 7.7, 8.2, 8.3, 8.4, 9.2.1, 9.2.3, 9.3, 9.4.2, 9.5, 9.7.1, 9.7.2, 9.7.3, 9.7.5.2, 9.7.6, 11.2, 11.3, 11.4, 11.5, 19.3.8, 19.3.10, 20.2.1, 20.3 , 20-1.2.1, 20-1.3 and 20-1.4) (SOLAS 74/88 regs.II-2/42 to 44, 46 to 50 and 52);

(CA) 2.2.2.29 confirming that the means of escape from accommodation, machinery and other spaces are satisfactory (SOLAS 74/00/14 regs.II-2/13.2, 13.3.1, 13.3.3, 13.4.2 and 13.6) (SOLAS 74/88 reg.II-2/45);

(CA) 2.2.2.30 examining the helicopter facilities (SOLAS 74/00/16 reg.II-2/18) (SOLAS 74/88 reg.II-2/18.8);

(CA) 2.2.2.31 examining the arrangements for gaseous fuel for domestic purposes (SOLAS 74/00 reg.II-2/4.3) (SOLAS 74/88 reg.II-2/51);

(CA) 2.2.2.32 examining visually the condition of any expansion joints in seawater systems;

(CA) 2.2.2.33 confirming, when appropriate and as far as is practicable when examining internal spaces on oil tankers and bulk carriers, that the means of access to cargo and other spaces remain in good condition (SOLAS 74/00/02 reg.II-1/3-6);

(CA) 2.2.2.34 confirming that no new materials containing asbestos were installed on board[1] (SOLAS 74/00/04/09 reg.II-1/3-5);

(CA) 2.2.2.35 examining the functionality of bilge well alarms to all cargo holds and conveyor tunnels (SOLAS 74/97/04 reg.XII/9);

(CA) 2.2.2.36 for bulk carriers, examining the hold, ballast and dry space water level detectors and their audible and visual alarms (SOLAS 74/02 reg.XII/12);

(CA) 2.2.2.37 for bulk carriers, checking the arrangements for availability of draining and pumping systems forward of the collision bulkhead (SOLAS 74/02 reg.XII/13);

(CA) 2.2.2.38 confirming that the ship's identification number is permanently marked (SOLAS 74/02 reg.XI-1/3);

(CA) 2.2.2.39 confirming, where applicable, that an appropriate portable atmosphere testing instrument or instruments[2] is on board, and that suitable means are provided for the calibration of all such instruments;[3] and checking the appropriateness of the testing and calibration (SOLAS 74/14 reg.XI-1/7);

(CA) 2.2.2.40 for single hull, single hold cargo ships, examining the cargo hold water level detector and its audible and visual alarm (SOLAS 74/04 reg.II-1/23-3) (SOLAS 74/06 reg.II-1/25);

(CA) 2.2.2.41 confirming that the coating system in dedicated SWB tanks in ships and double side skin spaces arranged in bulk carriers of 150 m in length and upward when appropriate is maintained and that maintenance, repair and partial recoating are recorded in the coating technical file (SOLAS 74/00/06 reg.II-1/3-2);

(CA) 2.2.2.42 confirming, for bulk carriers constructed before 1 July 1999 with restrictions imposed with respect to the carriage of cargoes with a density of 1,780 kg/m^3 and above, that a triangle is permanently marked at midship (SOLAS 74/97/04 reg.XII/8.3); and

(CA) 2.2.2.43 confirming, for bulk carriers, that the loading instrument is on board and functioning (SOLAS 74/97/04 reg.XII/11).

(CA) 2.2.3 For the hull,[4] machinery and equipment of cargo ships, concerning the additional requirements for oil tankers, the annual survey should consist of:

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[1] Refer to the *Unified interpretation of SOLAS regulation II-1/3-5* (MSC.1/Circ.1379 and MSC.1/Circ.1426/Rev.1).

[2] Refer to the *Guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces as required by SOLAS regulation XI-1/7* (MSC.1/Circ.1477).

[3] Refer to the *Unified interpretations of SOLAS regulation XIV/2.2 and paragraphs 1.3.2 and 1.3.6, part I-A of the Polar Code* (MSC.1/Circ.1562).

[4] Refer also to annex B of the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CA) 2.2.3.1 confirming, when appropriate, that the requisite arrangements to regain steering capability in the event of the prescribed single failure are being maintained (SOLAS 74/88/14 reg.II-1/29);

(CA) 2.2.3.2 examining the cargo tank openings, including gaskets, covers, coamings and screens;

(CA) 2.2.3.3 examining the cargo tank pressure/vacuum valves and devices to prevent the passage of flame (SOLAS 74/00/15 reg.II-2/11.6);

(CA) 2.2.3.4 examining the devices to prevent the passage of flame on vents to all bunker, oily-ballast and oily-slop tanks and void spaces, as far as practicable;

(CA) 2.2.3.5 examining the cargo tank venting, cargo tank purging and gas freeing and other ventilation systems (SOLAS 74/00/15 regs.II-2/4.5.3, 4.5.4, 4.5.6 and 4.5.8) (SOLAS 74/88 reg.II-2/59);

(CA) 2.2.3.6 examining the cargo, crude oil washing, ballast and stripping systems both on deck and in the cargo pump-rooms and the bunker system on deck;

(CA) 2.2.3.7 confirming that all electrical equipment in dangerous zones is suitable for such locations, is in good condition and is being properly maintained;

(CA) 2.2.3.8 confirming that potential sources of ignition in or near the cargo pump-room are eliminated, such as loose gear, combustible materials, etc., that there are no signs of undue leakage and that access ladders are in good condition;

(CA) 2.2.3.9 examining all pump-room bulkheads for signs of oil leakage or fractures and, in particular, the sealing arrangements of all penetrations of cargo pump-room bulkheads;

(CA) 2.2.3.10 examining, as far as practicable, the cargo, bilge, ballast and stripping pumps for undue gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of cargo pump-room bilge system, and checking that pump foundations are intact;

(CA) 2.2.3.11 confirming that the pump-room ventilation system is operational, ducting intact, dampers operational and screens clean;

(CA) 2.2.3.12 verifying that installed pressure gauges on cargo discharge lines and level indicator systems are operational;

(CA) 2.2.3.13 examining access to bow arrangement (SOLAS 74/00/04 reg.II-1/3-3);

(CA) 2.2.3.14 examining the towing arrangement for tankers of not less than 20,000 tonnes deadweight (SOLAS 74/00/04 reg.II-1/3-4);

(CA) 2.2.3.15 confirming that the corrosion prevention system fitted to dedicated ballast water tanks of oil tankers and bulk carriers when appropriate is maintained (SOLAS 74/00 reg.II-1/3-2);

(CA) 2.2.3.16 confirming that the coating system in cargo oil tanks of crude oil tankers, when appropriate, is maintained and that in-service maintenance and repair activities are recorded in the coating technical file (SOLAS 74/10 reg.II-1/3-11 and MSC.288(87), as amended);

(CA) 2.2.3.17 examining the emergency lighting in all cargo pump-rooms of tankers constructed after 1 July 2002 (SOLAS 74/00 reg.II-1/43); and

(CA) 2.2.3.18 examining, for oil tankers of 150 m in length and above, where appropriate, the ship's structure in accordance with the Ship Construction File, taking into account identified areas that need special attention, and verifying that the Ship Construction File is updated, where applicable[1](SOLAS reg.II-1/3-10 and MSC.287(87)).

(CA) 2.2.4 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for chemical tankers and gas carriers, the annual survey should consist of:

(CA) 2.2.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.16 and (CA) 2.2.3.18.

(CA) 2.2.5 For the hull, machinery and equipment of cargo ships concerning the additional requirements for using natural gas as fuel other than ships covered by the IGC Code, the annual survey should consist of:

(CA) 2.2.5.1 examining the logbooks and operating records with regard to correct functioning of the gas detection systems, fuel supply/gas systems, etc. (IGF Code ch.16);

(CA) 2.2.5.2 confirming the manufacturer/builder instructions and manuals covering the operations, safety and maintenance requirements and occupational health hazards relevant to fuel storage, fuel bunkering, and fuel supply and associated systems for the use of the fuel, are provided on board the vessel (IGF Code chs.6 and 18);

(CA) 2.2.5.3 confirming gas detection and other leakage detection equipment in compartments containing fuel storage, fuel bunkering, and fuel supply equipment or components or associated systems, including indicators and alarms, are in satisfactory operating condition (IGF Code chs.6 and 15);

(CA) 2.2.5.4 confirming the satisfactory operation of the control, monitoring and automatic shutdown systems of the fuel supply and bunkering systems (IGF Code ch.15);

(CA) 2.2.5.5 confirming the availability of test and calibration records of the gas detection systems (IGF Code ch.15);

(CA) 2.2.5.6 examining piping, hoses, emergency shutdown valves, remote operating valves, relief valves, means for inerting, machinery and equipment for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating, cooling or otherwise handling the fuel (IGF Code chs.5, 6, 8, 9, 10 and 15);

[1] Refer to annex B of the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CA) 2.2.5.7 testing the shutdown of ESD protected machinery spaces operationally, as far as practicable (IGF Code ch.5);

(CA) 2.2.5.8 confirming stopping of pumps and compressors upon emergency shutdown of the system (IGF Code chs.6, 10 and 15);

(CA) 2.2.5.9 examining the ventilation system, including portable ventilating equipment where fitted, for spaces containing fuel storage, fuel bunkering, and fuel supply units or components or associated systems, including air locks, pump-rooms, compressor rooms, fuel preparation rooms, fuel valve rooms, control rooms and spaces containing gas burning equipment (IGF Code chs.12 and 13);

(CA) 2.2.5.10 testing, as far as practicable, alarms, such as differential pressure and loss of pressure alarms (IGF Code ch.15);

(CA) 2.2.5.11 examining portable and fixed drip trays and insulation (IGF Code ch.5);

(CA) 2.2.5.12 examining electrical equipment including electrical bonding arrangements and bulkhead/deck penetrations including access openings in hazardous areas (IGF Code chs.5, 12 and 14);

(CA) 2.2.5.13 examining the condition and arrangement of fuel storage, bunkering and supply systems including external examination of storage tank (including secondary barrier if fitted) and relief valves if accessible, verification of satisfactory operation of tank monitoring system, examination and testing of installed bilge alarms and means of drainage (IGF Code chs.6, 8 and 15);

(CA) 2.2.5.14 testing of the remote and local closing of the installed main tank valve (IGF Code chs.6 and 10);

(CA) 2.2.5.15 examining bunkering stations and the fuel bunkering system including operation of the fuel bunkering control, monitoring and shutdown systems (IGF Code ch.8);

(CA) 2.2.5.16 examining the Ship-shore link (SSL) or equivalent means for automatic and manual ESD communication to the bunkering source (IGF Code para.8.5.7);

(CA) 2.2.5.17 examining the fuel supply system including the fuel supply system control, monitoring and shutdown systems (IGF Code chs.9 and 15);

(CA) 2.2.5.18 testing of the remote and local closing of the master fuel valve for each engine compartment (IGF Code chs.5, 9 and 15);

(CA) 2.2.5.19 checking the records about drills and emergency exercises (IGF Code ch.17); and

(CA) 2.2.5.20 checking the pre-bunkering verification records according to the bunker safety checklist (IGF Code ch.18).

(CA) 2.2.6 For the hull, machinery and equipment of cargo ships the completion of the annual survey should consist of:

(CA) 2.2.6.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed; and

(CA) 2.2.6.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(CIn) **2.3** **Intermediate surveys** – see part "General", section 4.3

(CIn) 2.3.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:

(CIn) 2.3.1.1 the provisions of (CA) 2.2.1.

(CIn) 2.3.2 For the hull,[1] machinery and equipment of cargo ships the intermediate survey should consist of:

(CIn) 2.3.2.1 the provisions of (CA) 2.2.2;

(CIn) 2.3.2.2 for ships over 5 years of age, an internal examination of representative spaces used for water ballast;

(CIn) 2.3.2.3 for ships over 10 years of age, other than gas carriers and ships engaged in the carriage of dry cargoes only, an internal examination of selected cargo spaces; and

(CIn) 2.3.2.4 for ships over 15 years of age, engaged in the carriage of dry cargoes only, an internal examination of selected cargo spaces.

(CIn) 2.3.3 For the hull,[2] machinery and equipment of cargo ships for the additional requirements for oil tankers the intermediate survey should consist of:

(CIn) 2.3.3.1 the provisions of (CA) 2.2.3;

(CIn) 2.3.3.2 should there be any doubt as to its condition when examining the various piping systems, the piping may be required to be pressure tested, gauged or both; particular attention is to be paid to repairs such as welded doublers; and

(CIn) 2.3.3.3 testing the insulation resistance of electrical circuits in dangerous zones such as cargo pump-rooms and areas adjacent to cargo tanks, but in cases where a proper record of testing is maintained, consideration should be given to accepting recent readings.

(CIn) 2.3.4 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for chemical tankers and gas carriers, the intermediate survey should consist of:

(CIn) 2.3.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.16 and (CA) 2.2.3.18.

[1] Refer also to annex A to the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

[2] Refer also to annex B to the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CIn) 2.3.5 For the hull, machinery and equipment of cargo ships concerning the additional requirements for using natural gas as fuel other than ships covered by the IGC Code, the intermediate survey should consist of:

(CIn) 2.3.5.1 the provisions of (CA) 2.2.5; and

(CIn) 2.3.5.2 testing gas detectors, temperature sensors, pressure sensors, level indicators, and other arrangement of control, monitoring and safety of fuel supply systems including proper response of the fuel safety system upon fault conditions (IGF Code ch.15).

(CIn) 2.3.6 For the hull, machinery and equipment of cargo ships the completion of the intermediate survey should consist of:

(CIn) 2.3.6.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed; and

(CIn) 2.3.6.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(CR) **2.4** **Renewal surveys** – see part "General", section 4.5

(CR) 2.4.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:

(CR) 2.4.1.1 the provisions of (CA) 2.2.1, except for the validity of the Cargo Ship Safety Construction Certificate.

(CR) 2.4.2 For the hull,[1] machinery and equipment of cargo ships the renewal survey should consist of:

(CR) 2.4.2.1 the provisions of (CIn) 2.3.2;

(CR) 2.4.2.2 examination of sea valves and their connections to the hull; and

(CR) 2.4.2.3 examination of anchoring and mooring equipment, for which purpose the anchors should be lowered and raised using the windlass.

(CR) 2.4.3 For the hull,[2] machinery and equipment of cargo ships, concerning the additional requirements for oil tankers, the renewal survey should consist of:

(CR) 2.4.3.1 the provisions of (CIn) 2.3.3.

(CR) 2.4.4 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for chemical tankers and gas carriers, the renewal survey should consist of:

(CR) 2.4.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.16 and (CA) 2.2.3.18.

[1] Refer also to annex A of the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

[2] Refer also to annex B of the *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011* (resolution A.1049(27)), as amended.

(CR) 2.4.5 For the hull, machinery and equipment of cargo ships, concerning the additional requirements for bulk carriers the renewal survey should consist of the provisions of (CI) 2.1.4.68 and 2.1.4.70.

(CR) 2.4.6 For the hull, machinery and equipment of cargo ships concerning the additional requirements for ships using natural gas as fuel other than ships covered by the IGC Code, the renewal survey should consist of:

(CR) 2.4.6.1 the provisions of (CIn) 2.3.5;

(CR) 2.4.6.2 examining the storage tanks and all associated piping for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating, storing, burning or otherwise handling the fuel and liquid nitrogen installations, and requiring removal of insulation from the piping and opening for examination and hydrostatic test of suspected pipeline as necessary, and leak test of complete piping after reassembly (IGF Code chs.5, 6, 7, 8, 9 and 10);

(CR) 2.4.6.3 examining emergency shutdown valves, check valves, block and bleed valves, master gas valves, remote operating valves, isolating valves for pressure relief valves in the fuel storage, fuel bunkering, and fuel supply piping systems, with randomly selected valves being opened for examination (IGF Code chs.5, 6, 7, 9, 15 and 16);

(CR) 2.4.6.4 examining pressure relief valves connected to fuel storage tanks and connected pipes and venting system, with PRV being opened for examination, adjusted and function tested (IGF Code ch.6);

(CR) 2.4.6.5 examining and testing pressure relief valves in fuel supply/bunker lines, including valves being opened for internal examination and testing; the number of valves being opened up for internal examination and being tested should include all PRVs that were not internally examined and tested in the past 5 years and a random selection of PRVs that were internally examined and tested in the past 5 years provided satisfactory records of overhaul and testing of these PRVs are available (IGF Code ch.6);

(CR) 2.4.6.6 examining pressure/vacuum relief valves or devices for interbarrier spaces and hold spaces, with the valves being opened, examined, tested and readjusted as necessary (IGF Code ch.6);

(CR) 2.4.6.7 examining fuel storage tanks internally in accordance with an approved survey plan (IGF Code ch.6);

(CR) 2.4.6.8 examining and testing of spill protection and water spray systems, for portable liquefied gas fuel tanks located on open deck (IGF Code para.6.5.2);

(CR) 2.4.6.9 examining and testing the thermal oxidation system if any (IGF Code para.6.9.4);

(CR) 2.4.6.10 examining and NDE testing the low temperature steel shielding at the bunker station if any (IGF Code para.8.3.1.6);

(CR) 2.4.6.11 examining fuel pumps, compressors, process pressure vessels, inert

gas generators, heat exchangers and other components used in connection with fuel handling (IGF Code chs.5, 6, 8, 9, 10 and 15);

(CR) 2.4.6.12 examining electrical equipment including the physical condition of electrical cables and supports, intrinsically safe, explosion proof, or increased safety features of electrical equipment, including functional tests of pressurized electrical equipment and associated alarms, testing of electrical equipment for de-energization which is not certified for use in hazardous areas and insulation resistance test of circuits passing through a hazardous zone (IGF Code chs.12 and 14); and

(CR) 2.4.6.13 examining and testing gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system, including verification of the response upon fault conditions, and the calibrations of pressure, temperature and level indicating equipment in accordance with the manufacturer's requirements (IGF Code ch.15).[1]

(CR) 2.4.7 After a satisfactory survey, the Cargo Ship Safety Construction Certificate should be issued.

(B) 3 GUIDELINES FOR THE INSPECTION OF THE OUTSIDE OF THE SHIP'S BOTTOM OF CARGO SHIPS

(CB) 3.1 For the inspection of the outside of the ship's bottom of cargo ships the inspection should consist of:

(CB) 3.1.1 examining the ship's shell including bottom and bow plating, keel, bilge keels, stem, stern frame and rudder;

(CB) 3.1.2 noting the clearances measured in the rudder bearings;

(CB) 3.1.3 examining the propeller and shaft seals, as far as practicable;

(CB) 3.1.4 noting the clearance measured in the propeller shafts, as far as practicable;

(CB) 3.1.5 examining sea chests and strainers; and

(CB) 3.1.6 the survey of related items inspected at the same time (see part "General" section 5.1).

(CB) 3.2 For the inspection of the outside of the ship's bottom of cargo ships the completion of the inspection should consist of:

(CB) 3.2.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed; and

(CB) 3.2.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General" section 4.8.

(R) **4 GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY RADIO CERTIFICATE**

[1] Refer to the *Unified interpretations of the IGF Code* (MSC.1/Circ.1591).

(RI) **4.1** **Initial surveys** – see part "General" section 4.1

(RI) 4.1.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of plans and designs should consist of:

(RI) 4.1.1.1 establishing the sea areas declared for operation, the equipment installed to fulfil the functional requirements for the sea areas of operation, the methods adopted to ensure the availability of the functional requirements and the arrangements for supply of an emergency source of energy (if any) (SOLAS 74/88 regs.II-1/43 and IV/1 to 15);

(RI) 4.1.1.2 establishing which radio equipment is to be surveyed and, if duplication of equipment is used as a means of ensuring the availability of the functional requirements, establishing which is the "basic equipment" and which the "duplicated equipment" (SOLAS 74/88 reg.IV/15) (additional radiocommunications equipment provided other than for SOLAS compliance should be noted);

(RI) 4.1.1.3 confirming all SOLAS equipment complies with appropriate performance standards not inferior to those adopted by IMO (SOLAS 74/88 reg.IV/14);

(RI) 4.1.1.4 examining the plans for the provision and position of the radio installation, including sources of energy and antennas (SOLAS 74/88 regs.II-1/43, IV/6, IV/14 and V/19); and

(RI) 4.1.1.5 examining the plans for the provision and positioning of the radio life-saving appliances (SOLAS 74/88 reg.III/6).

(RI) 4.1.2 For the radio installations, including radio life-saving appliances, of cargo ships the survey during construction and after installation should consist of:

(RI) 4.1.2.1 examining the position, physical and electromagnetic protection and illumination of each radio installation (SOLAS 74/88 reg.IV/6);

(RI) 4.1.2.2 confirming the provision of equipment for the radio installation with due regard to the declared sea areas in which the ship will trade and the declared means of maintaining availability of functional requirements (SOLAS 74/88 regs.III/6, IV/7 to 11, 14 and 15);

(RI) 4.1.2.3 confirming the ability to initiate the transmission of ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service, from the position from which the ship is normally navigated (SOLAS 74/88/06 regs.IV/4, 7 to 11);

(RI) 4.1.2.4 examining all antennas, including:

(RI) 4.1.2.4.1 visually checking all antennas, including recognized mobile satellite service antennas, and feeders for satisfactory siting and absence of defects (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.4.2 checking insulation and safety of all antennas;

(RI) 4.1.2.5 examining the reserve source of energy, including:

(RI) 4.1.2.5.1 checking there is sufficient capacity to operate the basic or duplicated equipment for 1 hour or 6 hours, as appropriate (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.5.2 if the reserve source of energy is a battery:

(RI) 4.1.2.5.2.1 checking its siting and installation (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.5.2.2 where appropriate, checking its condition by specific gravity measurement or voltage measurement;

(RI) 4.1.2.5.2.3 with the battery off charge, and the maximum required radio installation load connected to the reserve source of energy, checking the battery voltage and discharge current;

(RI) 4.1.2.5.2.4 checking that the charger or chargers are capable of recharging the reserve battery within 10 hours (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.5.2.5 checking that information on ship's position is provided continuously and automatically to all two-way communication equipment (SOLAS 74/88 reg.IV/18);

(RI) 4.1.2.6 examining the VHF transceiver(s), including:

(RI) 4.1.2.6.1 checking for operation on channels 6, 13 and 16 (SOLAS 74/88 regs.IV/7 and 14);

(RI) 4.1.2.6.2 checking frequency tolerance, transmission line quality and radio frequency power output (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.6.3 checking for correct operation of all controls including priority of control units (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.6.4 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.6.5 checking the operation of the VHF control unit(s) or portable VHF equipment provided for navigational safety (SOLAS 74/88 reg.IV/6);

(RI) 4.1.2.6.6 checking for correct operation by on-air contact with a coast station or other ship;

(RI) 4.1.2.7 examining the VHF DSC controller and channel 70 Digital Selective Calling (DSC) watch receiver, including:

(RI) 4.1.2.7.1 performing an off-air check confirming the correct Maritime Mobile Service Identity is programmed in the equipment (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.7.2 checking for correct transmission by means of a routine or test call to a coast station, other ship, onboard duplicate equipment or special test equipment;

(RI) 4.1.2.7.3 checking for correct reception by means of a routine or test call from a coast station, other ship, onboard duplicate equipment or special test equipment;

(RI) 4.1.2.7.4 checking the audibility of the VHF/DSC alarm;

(RI) 4.1.2.7.5 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.8 examining the MF/HF radiotelephone equipment, including:

(RI) 4.1.2.8.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.8.2 checking the antenna tuning in all appropriate bands;

(RI) 4.1.2.8.3 checking that the equipment is within frequency tolerance on all appropriate bands (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.8.4 checking for correct operation by contact with a coast station and/or measuring transmission line quality and radio frequency output;

(RI) 4.1.2.8.5 checking receiver performance by monitoring known stations on all appropriate bands;

(RI) 4.1.2.8.6 if control units are provided outside the navigating bridge, checking that the control unit on the bridge has first priority for the purpose of initiating distress alerts (SOLAS 74/88 regs.IV/9, 10, 11 and 14);

(RI) 4.1.2.9 examining the HF radiotelex equipment, including:

(RI) 4.1.2.9.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.9.2 confirming that the correct selective calling number is programmed in the equipment;

(RI) 4.1.2.9.3 checking correct operation by inspection of recent hard copy or by a test with a coast radio station (SOLAS 74/88 regs.IV/10 and 11);

(RI) 4.1.2.10 examining the MF/HF DSC controller(s), including:

(RI) 4.1.2.10.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(RI) 4.1.2.10.2 confirming that the correct Maritime Mobile Service Identity is programmed in the equipment;

(RI) 4.1.2.10.3 checking the off-air self-test program;

(RI) 4.1.2.10.4 checking operation by means of a test call on MF and/or HF to a coast radio station if the rules of the berth permit the use of MF/HF transmissions (SOLAS 74/88 regs.IV/9, 10 and 11);

(RI) 4.1.2.10.5 checking the audibility of the MF/HF DSC alarm;

(RI) 4.1.2.11 examining the MF/HF DSC watch receiver(s), including:

(RI) 4.1.2.11.1 confirming that only distress and safety DSC frequencies are being monitored (SOLAS 74/88 regs.IV/9 to 12);

(RI) 4.1.2.11.2 checking that a continuous watch is being maintained while keying MF/HF radio transmitters (SOLAS 74/88 reg.IV/12);

(RI) 4.1.2.11.3 checking for correct operation by means of a test call from a coast station or other ship;

(RI) 4.1.2.12 examining the recognized mobile satellite service ship earth station(s), including:

(RI) 4.1.2.12.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy, and that where an uninterrupted supply of information from the ship's navigational or other equipment is required ensuring such information remains available in the event of failure of the ship's main or emergency source of electrical power (SOLAS 74/88 regs.IV/13 and 14);

(RI) 4.1.2.12.2 checking the distress function by means of an approved test procedure where possible (SOLAS 74/88 regs.IV/10, 12 and 14);

(RI) 4.1.2.12.3 checking for correct operation by inspection of recent hard copy or by test call;

(RI) 4.1.2.13 if appropriate, examining the NAVTEX equipment (SOLAS 74/88 regs.IV/7, 12 and 14), including:

(RI) 4.1.2.13.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;

(RI) 4.1.2.13.2 running the self-test program if provided;

(RI) 4.1.2.14 examining the Enhanced Group Call equipment (SOLAS 74/88 regs.IV/7 and 14), including:

(RI) 4.1.2.14.1 checking for correct operation and area by monitoring incoming messages or by inspecting recent hard copy;

(RI) 4.1.2.14.2 running the self-test program if provided;

(RI) 4.1.2.15 if appropriate, examining the radio equipment for receipt of maritime safety information by HF Narrow Band Direct Printing (NBDP) (SOLAS 74/88 regs.IV/7, 12 and 14), including:

(RI) 4.1.2.15.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;

(RI) 4.1.2.15.2 running the self-test program if provided;

(RI) 4.1.2.16 examining the 406 MHz satellite Emergency Position Indicating Radio Beacon (EPIRB) (SOLAS 74/88 regs.IV/7 and 14), including:

(RI) 4.1.2.16.1 checking position and mounting for float free operation;

(RI) 4.1.2.16.2 carrying out visual inspection for defects;

(RI) 4.1.2.16.3 carrying out the self-test routine;

(RI) 4.1.2.16.4 checking that the unique beacon identification code is clearly marked on the outside of the equipment and, where possible, decoding the unique beacon identification code confirming it is correct;

(RI) 4.1.2.16.5 checking that the unique beacon identification code programmed in the EPIRB corresponds with the unique beacon identification code assigned by or on behalf of the Administration;

(RI) 4.1.2.16.6 checking that the MMSI number if encoded in the beacon corresponds with the MMSI number assigned to the ship;

(RI) 4.1.2.16.7 checking the battery expiry date;

(RI) 4.1.2.16.8 if provided, checking the hydrostatic release and its expiry date;

(RI) 4.1.2.16.9 checking the emission on operational frequencies, coding and registration on the 406 MHz signal without transmission of a distress call to the satellite;

(RI) 4.1.2.16.10 checking that the EPIRB has been subject to maintenance at intervals not exceeding five years at an approved shore-based maintenance facility (SOLAS 74/04 reg.IV/15.9);

(RI) 4.1.2.16.11 if possible, checking the emission on operational frequencies, coding and registration on the 121.5 MHz homing signal without transmission of a distress call to the satellite;

(RI) 4.1.2.17 examining the two-way VHF radiotelephone apparatus[1] (SOLAS 74/88 reg.III/6), including:

(RI) 4.1.2.17.1 checking for correct operation on Channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 reg.IV/14);

(RI) 4.1.2.17.2 checking the battery charging arrangements where re-chargeable batteries are used;

(RI) 4.1.2.17.3 checking the expiry date of primary batteries where used;

(RI) 4.1.2.17.4 where appropriate, checking any fixed installation provided in a survival craft;

(RI) 4.1.2.18 examining the search and rescue locating device(s) (SOLAS 74/88/08 regs.III/6, IV/7 and 14), including:

(RI) 4.1.2.18.1 checking the position and mounting;

(RI) 4.1.2.18.2 monitoring response on ship's 9 GHz radar;

(RI) 4.1.2.18.3 checking the battery expiry date; and

[1] Expired primary batteries, which complied with the requirements of paragraph 12.6 of *Revised recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.149 (77)), could be used for no other purpose than to examine and check the operation of two-way VHF radiotelephone apparatus.

(RI) 4.1.2.19 examining the test equipment and spares carried to ensure carriage is adequate in accordance with the sea areas in which the ship trades and the declared options for maintaining availability of the functional requirements (SOLAS 74/88 reg.IV/15).

(RI) 4.1.3 For the radio installations, including those used in life-saving appliances, the check that documentation, etc., has been placed on board should consist of:

(RI) 4.1.3.1 checking for a valid radio licence issued by the flag Administration (ITU RR Article 24);

(RI) 4.1.3.2 checking the radio operator's certificates of competence (SOLAS 74/88 reg.IV/16 and ITU RR Article 56);

(RI) 4.1.3.3 checking the radio record (log) (SOLAS 74/88 reg.IV/17 and ITU RR App.11);

(RI) 4.1.3.4 checking the carriage of up-to-date ITU publications (ITU RR App.11);

(RI) 4.1.3.5 checking the carriage of operating manuals for all equipment (SOLAS 74/88 reg.IV/15); and

(RI) 4.1.3.6 checking the carriage of service manuals for all equipment when at-sea maintenance is the declared option (SOLAS 74/88 reg.IV/15).

(RI) 4.1.4 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the initial survey should consist of:

(RI) 4.1.4.1 the surveyor preparing and forwarding a survey report, indicating clearly the organization he or she represents, to the relevant authorities, detailing results of the survey and recording omissions and deficiencies; if satisfied, the relevant authorities should issue a Cargo Ship Safety Radio Certificate and the associated Record of Equipment (form R).

(RP) **4.2** **Periodical surveys** – see part "General" section 4.4

(RP) 4.2.1 For radio installations, including radio life-saving appliances, on cargo ships the examination of current certificates and other records should consist of:

(RP) 4.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(RP) 4.2.1.2 checking, as appropriate, the validity of the Polar Ship Certificate;

(RP) 4.2.1.3 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(RP) 4.2.1.4 checking the validity of the International Ship Security Certificate;

(RP) 4.2.1.5 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(RP) 4.2.1.6 checking the validity of the International Oil Pollution Prevention Certificate;

(RP) 4.2.1.7 checking the certificates of class, if the ship is classed with a classification society;

(RP) 4.2.1.8 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(RP) 4.2.1.9 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(RP) 4.2.1.10 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(RP) 4.2.1.11 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(RP) 4.2.1.12 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(RP) 4.2.1.13 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(RP) 4.2.1.14 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5);[1]

(RP) 4.2.1.15 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(RP) 4.2.1.16 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(RP) 4.2.1.17 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 reg.V/13(b));

(RP) 4.2.1.18 checking that adequate information is on board to enable the equipment to be properly operated and maintained;

(RP) 4.2.1.19 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(RP) 4.2.1.20 confirming that any new equipment has been properly approved before installation and that no changes have been made such as would affect the validity of the certificate;

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(RP) 4.2.1.21 confirming that a record has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Radio Regulations (SOLAS 74/88 reg.IV/17);

(RP) 4.2.1.22 checking documentary evidence that the actual capacity of the battery has been proved in port within the last 12 months (SOLAS 74/88 reg.IV/13);

(RP) 4.2.1.23 confirming that the provisions of (RI) 4.1.3 have been met;

(RP) 4.2.1.24 checking that the annual test has been carried out for the Satellite EPIRB and, if applicable, shore-based maintenance has been carried out at intervals not exceeding five years (SOLAS 74/04 reg.IV/15); and

(RP) 4.2.1.25 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2) when applicable.

(RP) 4.2.2 For radio installations, including radio life-saving appliances, of cargo ships the periodical survey should consist of:

(RP) 4.2.2.1 the provisions of (RI) 4.1.2.

(RP) 4.2.3 For radio installations, including those used in radio life-saving appliances, of cargo ships the completion of the periodical survey should consist of:

(RP) 4.2.3.1 after a satisfactory survey, endorsing the Cargo Ship Safety Radio Certificate; and

RP) 4.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General" section 4.8.

(RR) **4.3** **Renewal surveys** – see part "General" section 4.5

(RR) 4.3.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of current certificates and other records should consist of:

(RR) 4.3.1.1 the provisions of (RP) 4.2.1, except for the validity of the Cargo Ship Safety Radio Certificate.

(RR) 4.3.2 For the radio installations, including those used in radio life-saving appliances, of cargo ships the renewal survey should consist of:

(RR) 4.3.2.1 the provisions of (RI) 4.1.2.

(RR) 4.3.3 For the radio installations, including those used in radio life-saving appliances, of cargo ships the completion of the renewal survey should consist of:

(RR) 4.3.3.1 after a satisfactory survey, issuing the Cargo Ship Safety Radio Certificate as per the provisions of (RI) 4.1.4.

(P) **5** **GUIDELINES FOR SURVEYS FOR THE PASSENGER SHIP CERTIFICATE**

(PI) **5.1** **Initial surveys** – see part "General" section 4.1.

(PI) 5.1.1 For the hull, machinery and equipment of passenger ships the examination of plans and designs should consist of:

(PI) 5.1.1.1 examining the subdivision and stability (SOLAS 74/88/95 regs.II-1/4 to 8, 8-1, 8-2, 8-3, 13 and 16) (SOLAS 74/06/08/17 regs.II-1/5 to 8-1, 14 and 18; IS Code chs.1, 2 and 3) (SOLAS 74/12/17/18 regs.II-1/8-1);

(PI) 5.1.1.2 examining the ballasting arrangements (SOLAS 74/88 reg.II-1/9) (SOLAS 74/06/17 reg.II-1/20);

(PI) 5.1.1.3 examining the arrangement of the bulkheads, their construction and the openings therein, including the disposition and means of operation of the watertight doors (SOLAS 74/88 regs.II-1/10, 14, and 15) (SOLAS 74/06/17 regs.II-1/10, 11 12 and 13);

(PI) 5.1.1.4 examining the arrangement of the double bottoms (SOLAS 74/88 reg.II-1/12) (SOLAS 74/06/17reg.II-1/9);

(PI) 5.1.1.5 examining the arrangements for the openings in the shell plating below the margin line or the bulkhead deck as applicable, the construction of the watertight doors, sidescuttles, watertight decks, trunks, etc., and the watertight integrity above the margin line or the bulkhead deck as applicable (SOLAS 74/88 regs.II-1/17, 18, 19 and 20) (SOLAS 74/06/17 regs.II-1/15, 16, 16-1 and 17);

(PI) 5.1.1.6 examining the plans for the bilge pumping and drainage systems (SOLAS 74/88 regs.II-1/21 and 39) (SOLAS 74/05/09 reg.II-1/35-1 and SOLAS 74/08/17 reg.II-2/20.6.1.4);

(PI) 5.1.1.7 examining, when appropriate, the means of indicating the status of any bow doors and the leakage therefrom (SOLAS 74/88 reg.II-1/23-2) (SOLAS 74/06 reg.II-1/17-1);

(PI) 5.1.1.8 examining the plans for the machinery installation (SOLAS 74/88 regs.II-1/26 to 36 and 54);

(PI) 5.1.1.9 examining the plans for the electrical installation (SOLAS 74/88 regs.II-1/39, 40, 41, 42, 44 and 45);

(PI) 5.1.1.10 checking, when appropriate, the provision of supplementary emergency lighting (SOLAS 74/88 reg.II-1/42-1);

(PI) 5.1.1.11 examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 74/00/06/15 regs.II-1/55, II-2/17 and III/38 and IGF Code ch.2);

(PI) 5.1.1.12 examining the plans for the fire pumps, including the emergency fire pump[1] if applicable, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/88 reg.II-1/39 and SOLAS 74/00/14 reg.II-2/10.2; FSS Code chs.2 and 12) (SOLAS 74/88 reg.II-1/39 and regs.II-2/4 and 19);

[1] Refer to *the Unified interpretation of chapter 12 of the International Code for Fire Safety Systems* (MSC.1/Circ.1388).

(PI) 5.1.1.13 examining the plans for the fire-extinguishing arrangements in the machinery spaces (SOLAS 74/00/12/14/16 regs.II-2/10.4 and 10.5; FSS Code chs.5, 6 and 7) (SOLAS 74/88 reg.II-2/7);

(PI) 5.1.1.14 checking the provision and specification of the fire extinguishers and the fire-fighters' outfits including their self-contained compressed air breathing apparatus, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (SOLAS 74/88 regs.II-2/6 and 17) (SOLAS 74/00/12 reg.II-2/10.10);

(PI) 5.1.1.15 for passenger ships constructed on or after 1 July 2010, checking the provision of a suitably located means for fully recharging breathing air cylinders (SOLAS 74/08 reg.II-2/10.10.2);

(PI) 5.1.1.16 examining the plans for the fire-extinguishing and special arrangements in the machinery spaces (SOLAS 74/88 regs.II-1/39 and regs.II-2/7 and 11);

(PI) 5.1.1.17 examining the arrangements for oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2.3) (SOLAS 74/88 reg.II-2/15);

(PI) 5.1.1.18 examining the plans for the structural fire protection, including the means of escape (SOLAS 74/00/12/15/16/17 regs.II-2/4.4.4, 5.2, 5.3, 7.5, 7.8.2, 8.4, 8.5, 9, 10.6, 11, 13, 17, 20 and 20-1; FSS Code ch.13, sections 1 and 2) (SOLAS 74/88 regs.II-2/23 to 36);

(PI) 5.1.1.19 examining the plans for the protection of special category spaces and other cargo spaces (SOLAS 74/88 regs.II-2/37, 38 and 39) (SOLAS 74/00/06/10/15/17 regs.II-2/ 7.6, 9, 10.7.1, 10.7.2 and 20; FSS Code chs.9 and 10);

(PI) 5.1.1.20 examining the plans for the fire protection arrangements for passenger ships designed to carry containers on or above the weather deck, as applicable, including the water mist lance (SOLAS 74/00/14 reg.II 2/10.7.3);

(PI) 5.1.1.21 examining the plans for the fixed fire detection and alarm system, and any automatic sprinkler, fire detection and fire alarm system, as applicable, in machinery spaces, including enclosed spaces containing incinerators, accommodation and service spaces and control spaces (SOLAS 74/00/06/10 reg.II-2/7 (except 7.5.5, 7.6 and 7.9); FSS Code chs.8, 9 and 10) (SOLAS 74/88 reg.II-2/40);

(PI) 5.1.1.22 examining the plans for the crew alarm and the public address system or other effective means of communication (SOLAS 74/00/06 reg.II-2/7.9; FSS Code ch.9; LSA Code ch.7) (SOLAS 74/88 reg.II-2/40);

(PI) 5.1.1.23 examining the plans for the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch. 17) (SOLAS 74/88 reg.II-2/18.8);

(PI) 5.1.1.24 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection sample extraction smoke detection system, bilge pumping and personnel protection (SOLAS 74/88 regs.II-2/41 and 54) (SOLAS 74/00/08 reg.II-2/19; FSS Code chs.9 and 10);

(PI) 5.1.1.25 examining the provision and disposition of the survival craft and rescue boats and the arrangements for mustering passengers (SOLAS 74/00 regs.III/11 to 17, 21 and 24);

(PI) 5.1.1.26 examining the design of the survival craft, including their construction, equipment, fittings, release mechanisms and recovery appliances and embarkation and launching arrangements (SOLAS 74/88 regs.III/ 20 to 24, 36, 38 to 44 and 48) (SOLAS 74/06 reg.III/4) (LSA Code sections 3.2, 4.1 to 4.6, 6.1 to 6.2);

(PI) 5.1.1.27 examining the design of the rescue boats, including their equipment and launching and recovery appliances and arrangements (SOLAS 74/88 regs.III/16, 20, 47 and 48);

(PI) 5.1.1.28 examining the provision, specification and stowage of two-way VHF radiotelephone apparatus and search and rescue locating devices (SOLAS 74/88/08 reg.III/6.2.2);

(PI) 5.1.1.29 examining the provision, specification and stowage of the distress flares and the line-throwing appliance and the provision of onboard communications equipment and the general alarm system (SOLAS 74/88 regs.III/6, 17, 35, 49 and 50);

(PI) 5.1.1.30 examining the provision, specification and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88/06 regs.III/7, 21, 22 and 26);

(PI) 5.1.1.31 examining the plans for the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including the supply from the emergency source of power (SOLAS 74/88 regs.II-1/42 and III/11);

(PI) 5.1.1.32 examining the plans for the positioning of, and the specification for, the navigation lights, shapes and sound signalling equipment (COLREG 1972, rules 20 to 24, 27 to 30 and 33);

(PI) 5.1.1.33 examining the plans relating to the bridge design and arrangement of navigational systems and equipment and bridge procedures (SOLAS 74/00 reg.V/15);

(PI) 5.1.1.34 checking the provision and specification of the following navigation equipment as appropriate: daylight signalling lamp, magnetic compass, transmitting heading device, gyro compass, gyro compass repeaters, radar installation(s), automatic identification system, electronic plotting aid, automatic tracking aid(s) or automatic radar plotting aid(s), echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate of revolution indicator, variable pitch propeller pitch and operational mode indicator, rate-of-turn indicator, heading or track control system, GNSS receiver, terrestrial radio navigation system and sound reception system, a pelorus or compass bearing device, means for correcting heading and bearings, a BNWAS as applicable and ECDIS including backup arrangements as applicable (SOLAS 74/00/09/13 reg.V/19);

(PI) 5.1.1.35 checking the provision and specification of the voyage data recorder (SOLAS 74/00 reg.V/20);

(PI) 5.1.1.36 checking navigation bridge visibility (SOLAS 74/00 reg.V/22);

(PI) 5.1.1.37 checking for the provision and specification of the long-range identification and tracking system (SOLAS 74/04 reg.V/19-1);

(PI) 5.1.1.38 checking the plans and specification of the pilot transfer arrangement, the pilot ladders, the combination arrangements, where applicable, the access to the ship's deck and the associated equipment and lighting and pilot transfer arrangements (SOLAS 74/00/10 reg.V/23);

(PI) 5.1.1.39 establishing the sea areas declared for operation, the equipment installed to fulfil the functional requirements for the sea areas of operation, the methods adopted to ensure the availability of the functional requirements and the arrangements for supply of an emergency source of energy (if any) (SOLAS 74/88 regs.II-1/42 and IV/1 to 15);

(PI) 5.1.1.40 establishing which radio equipment is to be surveyed and, if duplication of equipment is used as a means of ensuring the availability of the functional requirements, establishing which is the "basic equipment" and which the "duplicated equipment" (SOLAS 74/88 reg.IV/15) (additional radiocommunication equipment provided other than for SOLAS compliance should be noted);

(PI) 5.1.1.41 confirming that all SOLAS equipment complies with appropriate performance standards not inferior to those adopted by IMO (SOLAS 74/88 reg.IV/14);

(PI) 5.1.1.42 examining the plans for the provision and positioning of the radio installation including sources of energy and antennas (SOLAS 74/88 regs.II-1/42, IV/6 and 14);

(PI) 5.1.1.43 examining the plans for the provision and positioning of the radio life-saving appliances (SOLAS 74/88 reg.III/6);

(PI) 5.1.1.44 if applicable, checking that a list of all limitations on the operation of a passenger ship is kept on board and updated;

(PI) 5.1.1.45 checking the provision of means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders (SOLAS 74/08 reg.II-1/3-9);

(PI) 5.1.1.46 checking the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5);

(PI) 5.1.1.47 for passenger ships constructed on or after 1 July 2010, checking the provision of a safety centre (SOLAS 74 reg.II-2/23) and associated ventilation requirements (SOLAS 74/06 reg.II-2/8.2);

(PI) 5.1.1.48 for passenger ships constructed on or after 1 July 2010 and having a length of 120 m or more or having three or more main vertical zones, confirming that design criteria for the ship's safe return to port and for systems to remain operational after a fire casualty have been documented and that safe areas have been designated (SOLAS 74/06 regs.II-2/21 and 22); and

(PI) 5.1.1.49 where applicable, examining the Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units (SOLAS 74/98/02 reg.VI/5.6).

(PI) 5.1.2 For the hull, machinery and equipment of passenger ships, concerning the examination of plans and designs additional requirements for the passenger ships using natural gas as fuel other than ships covered by the IGC Code should consist of:

(PI) 5.1.2.1 examining the plans for the fuel containment systems, control of vapour space of the liquefied gas fuel tanks, vapour detection, gauging, loading limits for the liquefied gas fuel tanks and other special requirements (IGF Code chs.5, 6, 7, 8 and 15));

(PI) 5.1.2.2 examining the plans for the ship arrangements (IGF Code ch.5);

(PI) 5.1.2.3 examining the plans for piping systems (IGF Code chs.5, 6, 7 and 9);

(PI) 5.1.2.4 examining the plans for the pressure control (IGF Code ch.6);

(PI) 5.1.2.5 examining the plans for the environmental control (IGF Code ch.6);

(PI) 5.1.2.6 examining the plans for machinery installation (IGF Code ch.10);

(PI) 5.1.2.7 examining the plans for fire protection and fire extinction equipment (IGF Code ch.11);

(PI) 5.1.2.8 examining the plans, for the fire detection and alarm system and fire-fighting arrangements (IGF Code paras.11.4, 11.5, 11.6 and 11.7);

(PI) 5.1.2.9 examining the plans for the ventilation systems (IGF Code chs.12 and 13);

(PI) 5.1.2.10 examining the plans for the electrical installations (IGF Code chs.12 and 14); and

(PI) 5.1.2.11 examining the plans for the control, monitoring and safety systems (IGF Code ch.15).

(PI) 5.1.3 For the hull, machinery and equipment of passenger ships the survey during construction and after installation should consist of:

(PI) 5.1.3.1 examining the outside of the ship's bottom, including the bottom and bow plating, keel, bilge keels, stem, stern frame, the rudder, sea chests and strainers (SOLAS 74/88 reg.I/7(b)(i));

(PI) 5.1.3.2 confirming the arrangements on which the calculations for subdivision and stability are based, and checking the subdivision load lines (SOLAS 74/88 /95 regs.II-1/4 to 8, 13 and 16) (SOLAS 74/06/08/17 regs.II-1/6, 7, 7-1, 7-2, 7-3, 8, 9,14, 18) (SOLAS 74/12/17/18 reg.II-1/8-1);

(PI) 5.1.3.3 confirming the provision of operational information to the master for safe return to port after a flooding casualty by onboard stability computer or shore-based support (SOLAS 74/12/17/18 reg.II-1/8-1);

(PI) 5.1.3.4 checking the ballasting arrangements (SOLAS 74/88 reg.II-1/9) (SOLAS 74/06/17 reg.II-1/20);

(PI) 5.1.3.5 confirming that dedicated seawater ballast tanks have an approved coating system when appropriate (SOLAS 74/00/06 reg.II-1/3-2);

(PI) 5.1.3.6 confirming the arrangement of the bulkheads, their construction and the openings therein, confirming that the collision bulkhead is watertight up to the freeboard deck, that the valves fitted on the pipes piercing the collision bulkhead are operable from above the freeboard deck and that there are no doors, manholes, ventilation ducts or any other openings, confirming that the other bulkheads, as required for the ship's subdivision, are watertight up to the bulkhead deck and confirming the construction of the watertight doors and that they have been tested (SOLAS 74/88 regs.II-1/10, 14, 15 and 18) (SOLAS 74/06/17 regs.II-1/10, 11, 12, 13 and 16);

(PI) 5.1.3.7 confirming that the watertight integrity has been maintained where pipes, scuppers, etc., pass through subdivision watertight bulkheads (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.8 confirming that a diagram is provided on the navigating bridge showing the location of the watertight doors together with indicators showing whether the doors are open or closed and confirming that the watertight doors and their means of operation have been installed in accordance with the approved plans (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.9 testing the operation of the watertight doors both from the navigating bridge in the event of an emergency and locally at the door itself (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13) and, in particular, that they are:

(PI) 5.1.3.9.1 operable locally from each side of the bulkhead;

(PI) 5.1.3.9.2 provided with devices giving an indication of whether the door is open or closed at all remote operating positions;

(PI) 5.1.3.9.3 provided with an audible alarm that is distinct from any other alarm in the area and, when appropriate, an intermittent visual signal;

(PI) 5.1.3.9.4 provided with control handles on each side of the bulkhead so that a person may hold both handles in the open position and pass safely through the watertight door without accidentally setting the power closing mechanism into operation;

(PI) 5.1.3.10 testing the remote hand-operation to close the power-operated sliding watertight door from an accessible position above the bulkhead deck (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.11 confirming that the watertight doors and their indicating devices are operable in the event of a failure of the main and emergency sources of power (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.12 checking, when appropriate, any watertight doors, that are not required to be closed remotely and are fitted in watertight bulkheads dividing 'tween deck spaces, and confirming that a notice is affixed concerning their closure (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.13 confirming that a notice is affixed to any portable plates on bulkheads in machinery spaces concerning their closure and, if appropriate, testing any power-operated watertight door fitted in lieu (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.14 confirming the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the bulkhead deck (SOLAS 74/06/17 reg.II-1/15);

(PI) 5.1.3.15 confirming that valves for closing the main and auxiliary sea inlets and discharges in the machinery spaces are readily accessible and indicators showing the status of the valves are provided (SOLAS 74/06/17 reg.II-1/15);

(PI) 5.1.3.16 confirming that gangway, cargo and fuelling ports fitted below the bulkhead deck can be effectively closed and that the inboard end of any ash or rubbish chutes are fitted with an effective cover (SOLAS 74/06/17 reg.II-1/13);

(PI) 5.1.3.17 confirming by a hose or flooding test the watertightness of watertight decks and trunks, tunnels and ventilators (SOLAS 74/88 reg.II-1/19) (SOLAS 74/06/17 reg.II-1/16-1);

(PI) 5.1.3.18 confirming the arrangements to maintain the watertight integrity above the bulkhead deck (SOLAS 74/06/17 regs.II-1/17 and 17-1);

(PI) 5.1.3.19 confirming the arrangements for the bilge pumping and that each bilge pump and the bilge pumping system provided for each watertight compartment are working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(PI) 5.1.3.20 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(PI) 5.1.3.20.1 examining visually the drainage facilities for blockage or other damage and confirming the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5);

(PI) 5.1.3.21 conducting an inclining test (SOLAS 74/88 reg.II-1/22) (SOLAS 74/06/17 reg.II-1/5);

(PI) 5.1.3.22 checking, when appropriate, the means of indicating the status of any bow doors and any leakage therefrom (SOLAS 74/88 reg.II-1/23-2) (SOLAS 74/06 reg.II-1/17-1);

(PI) 5.1.3.23 confirming that the arrangement for monitoring special category spaces or ro-ro spaces, when fitted, is satisfactory (SOLAS 74/06/17 reg.II-1/23);

(PI) 5.1.3.24 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected so as

to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 reg.II-1/26);

(PI) 5.1.3.25 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 reg.II-1/26);

(PI) 5.1.3.26 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 reg.II-1/26);

(PI) 5.1.3.27 confirming that the boilers, all parts of the machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure have been subjected to the appropriate tests, including a pressure test (SOLAS 74/88 reg.II-1/26);

(PI) 5.1.3.28 confirming that means are provided to ensure that the safe speed is not exceeded where there is the risk of machinery overspeeding (SOLAS 74/88 reg.II-1/27);

(PI) 5.1.3.29 confirming that, where practicable, means are provided to protect against overpressure in the parts of main, auxiliary and other machinery that are subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 reg.II-1/27);

(PI) 5.1.3.30 confirming that, when required, crankcase explosion relief devices are fitted to internal combustion engines and that they are arranged so as to minimize the possibility of injury to personnel (SOLAS 74/88 reg.II-1/27);

(PI) 5.1.3.31 confirming that main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could rapidly lead to a complete breakdown, serious damage or explosion (SOLAS 74/88 reg.II-1/27);

(PI) 5.1.3.32 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship[1] (SOLAS 74/88 reg.II-1/28);

(PI) 5.1.3.33 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative[2] (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.34 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88/14 reg.II-1/29);

[1] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-29 and II-30* (MSC.1/Circ.1416/Rev.1).

[2] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-29 and II-30* (MSC.1/Circ.1416/Rev.1).

(PI) 5.1.3.35 confirming that relief valves are fitted to any part of a steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces and that these relief valves are set to a pressure not exceeding the design pressure (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.36 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side in not more than 28 s,[1] or, where demonstration at the deepest seagoing draught is impracticable, with an alternative permissible sea trial loading condition[2] (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.37 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 s with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater,[3] or, where this is impracticable, with an alternative permissible sea trial loading condition[4] (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.38 confirming that the main or auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are

capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.39 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units* (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.40 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.41 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29);

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[1] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-29 and II-30* (MSC.1/Circ.1416/Rev.1).

[2] Refer to the *Unified interpretations of SOLAS regulations II-1/29.3 and II-1/29.4* (MSC.1/Circ.1536).

[3] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-29 and II-30* (MSC.1/Circ.1416/Rev.1).

[4] Refer to the *Unified interpretations of SOLAS regulations II-1/29.3 and II-1/29.4* (MSC.1/Circ.1536)

(PI) 5.1.3.42 confirming that the control system for the auxiliary steering gear, in the steering gear compartment and, if this gear is power-operated, from the navigating bridge, is operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.43 confirming that the control system for any main and auxiliary steering gear control system operable from the navigating bridge is capable of being brought into operation from a position on the navigating bridge, that means are provided in the steering gear compartment for disconnecting it from the steering gear that it serves and that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.44 confirming that the electric power circuits and steering gear control system, together with their associated components, cables and pipes, are separated, as far as practicable, throughout their length (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.45 confirming that the means of communication between the bridge and the steering gear is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position are provided (SOLAS 74/88/14 reg.II-1/29) (SOLAS 74/00 reg.V/19);

(PI) 5.1.3.46 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/88/14 reg.II-1/29) (SOLAS 74/00 reg.V/19);

(PI) 5.1.3.47 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank to which a contents gauge is fitted with fixed piping (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.48 confirming that the steering gear compartment is readily accessible, that it is separated, as far as practicable, from machinery spaces and is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88/14 reg.II-1/29);

(PI) 5.1.3.49 confirming that with electric and electro-hydraulic steering gear, the means for indicating, on the navigating bridge and at a main machinery control position, that the motors are running and that the overload alarm and alarm for the loss of a phase in a three-phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 reg.II-1/30);

(PI) 5.1.3.50 confirming that the main and auxiliary machinery essential for propulsion and the safety of the ship are provided with the effective means for its

operation and control (SOLAS 74/88 reg.II-1/31);

(PI) 5.1.3.51 confirming that appropriate means are provided where it is intended that the propulsion machinery should be remotely controlled from the navigating bridge, including, where necessary, the control, monitoring, reporting, alert and safety actions (SOLAS 74/00/02 reg.II-1/31);

(PI) 5.1.3.52 confirming that arrangements to operate main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 reg.II-1/31);

(PI) 5.1.3.53 confirming that, in general, means are provided for manually overriding automatic controls and that a failure does not prevent the use of the manual override (SOLAS 74/88 reg.II-1/31);

(PI) 5.1.3.54 confirming that oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are fitted with the appropriate safety features (SOLAS 74/88 regs.II-I/32, 33 and 34);

(PI) 5.1.3.55 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 reg.II-I/35);

(PI) 5.1.3.56 when appropriate, confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 reg.II-I/36 and SOLAS 74/12/16 reg.II-1/3-12.2); or confirming that the ship was constructed to reduce onboard noise and to protect personnel from noise in accordance with the Code on Noise Levels on Board Ships, adopted by resolution MSC.337(91), as amended (SOLAS 74/12/16 reg.II-1/3-12);

(PI) 5.1.3.57 confirming that the engine-room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigating bridge is operating satisfactorily (SOLAS 74/88 regulation II-1/37);

(PI) 5.1.3.58 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily and that appropriate means are provided to any other positions from which the engines are controlled (SOLAS 74/88 regulation II-1/37);

(PI) 5.1.3.59 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 regulation II-1/38);

(PI) 5.1.3.60 confirming that precautions, taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces, are efficient;

(PI) 5.1.3.61 confirming that the means of ascertaining the amount of oil contained in any oil tank are in satisfactory working condition (SOLAS 74/88 reg.II-2/15) (SOLAS 74/00 reg.II-2/4.2.2.3.5);

(PI) 5.1.3.62 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in satisfactory working condition (SOLAS 74/88 reg.II-2/15) (SOLAS 74/00 reg.II-2/4.2.2.4);

(PI) 5.1.3.63 confirming that forepeak tanks are not intended for carriage of oil fuel, lubrication oil and other flammable oils;

(PI) 5.1.3.64 confirming that the electrical installations, including the main source of power and lighting systems, are installed in accordance with the approved plans (SOLAS 74/88 regs.II-1/40 and 41);

(PI) 5.1.3.65 confirming that a self-contained emergency source of electrical power has been provided and that the appropriate systems are satisfactorily supplied (SOLAS 74/88 reg.II-1/42);

(PI) 5.1.3.66 confirming that the starting arrangements of each emergency generating set are satisfactory (SOLAS 74/88 reg.II-1/44);

(PI) 5.1.3.67 checking, when appropriate, the disposition of, and testing, the supplementary emergency lighting (SOLAS 74/88 reg.II-1/42-1);

(PI) 5.1.3.67.1 for passenger ships, constructed on or after 1 July 2010, confirming provision of supplementary lighting in all cabins, and checking that such lighting automatically illuminates and remains on for a minimum of 30 min when power to the normal cabin lighting is lost (SOLAS 74/06/10 reg.II-1/41.6);

(PI) 5.1.3.67.2 for passenger ships constructed on or after 1 July 2010, checking the provision of smoke detectors in cabins, which, when activated, are capable of emitting, or cause to be emitted, an audible alarm within the space where they are located (SOLAS 74/06 regs.II-2/7.5.2 and 7.5.3.1);

(PI) 5.1.3.68 confirming that precautions have been provided against shock, fire and other hazards of electrical origin (SOLAS 74/88 reg.II-1/45);

(PI) 5.1.3.69 confirming, when appropriate, that the arrangements for the machinery spaces being periodically unattended are satisfactory (SOLAS 74/88 reg.II-1/54);

(PI) 5.1.3.70 examining, where applicable, the alternative design and arrangements for machinery or electrical installations, low-flashpoint fuel storage and distribution systems, fire safety, or life-saving appliances and arrangements, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 74/00/06/15 regs.II-1/55, II-2/17 and III/38 and IGF Code ch.2);

(PI) 5.1.3.71 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship while the required pressure is maintained in the fire main and testing that the emergency fire pump, if applicable, has the required capacity, and, if the emergency fire pump is the main supply of water for any fixed fire-extinguishing system, checking that the emergency fire pump has the capacity for this system[1] (SOLAS 74/88 regs.II-2/4 and 19; SOLAS 74/00/14 reg.II-2/10.2; FSS Code chs.2 and 12);

[1] Refer to the *Unified interpretation of chapter 12 of the International Code for Fire Safety Systems* (MSC.1/Circ.1388).

(PI) 5.1.3.72 for passenger ships designed to carry containers on or above the weather deck, as applicable, examining the water mist lance (SOLAS 74/00/14 reg.II-2/10.7.3);

(PI) 5.1.3.73 examining the provision and disposition of the fire extinguishers (SOLAS 74/00 reg.II-2/10.3; FSS Code ch.4) (SOLAS 74/88 reg.II-2/17);

(PI) 5.1.3.74 examining the fire-fighters' outfits including their self-contained compressed air breathing apparatus, and emergency escape breathing devices (EEBDs); confirming that they are complete and in satisfactory condition and that the cylinders, including the spare cylinders, of the self-contained breathing apparatus, are suitably charged, and that onboard means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used are provided, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe. (SOLAS 74/00/08/12 regs.II-2/10.10, 13.3.4, 13.4.3 and 15.2.2; FSS Code ch.3) (SOLAS 74/88 reg.II-2/17);

(PI) 5.1.3.75 checking the operational readiness and maintenance of fire-fighting systems (SOLAS 74/00 reg.II-2/14) (SOLAS 74/88 regs.II-2/6, 17 and 21);

(PI) 5.1.3.76 examining the fixed fire-fighting system for the machinery, cargo, special category and vehicle spaces, as appropriate, and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/00/12/14 regs.II-2/10.4, 10.5, 10.7.1, 10.7.2 and 20.6.1; FSS Code ch.5 to 7) (SOLAS 74/88 regs.II-2/7 and 53);

(PI) 5.1.3.77 examining the fire-extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power-operated and other doors, the stopping of ventilation and boiler forced and induced draught fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/00/12/14/16 regs.II-2/5.2, 8.3, 9.5 and 10.5) (SOLAS 74/88 regs.II-2/7 and 11);

(PI) 5.1.3.78 checking that fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces, where applicable, are provided with two separate controls, one for opening the gas piping and one for discharging the gas from the storage container, each of them located in a release box clearly identified for the particular space (SOLAS 74/08 reg.II-2/10.4; FSS Code ch.5.2.2.2);

(PI) 5.1.3.79 examining the arrangements for oil fuel, lubricating oil and other flammable oils and testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88/06/17 reg.II-2/15) (SOLAS 74/00/15 reg.II-2/4.2);

(PI) 5.1.3.80 examining any fire detection and alarm system and confirming that installation tests have been satisfactorily completed (SOLAS 74/88 regs.II-2/11, 12, 13, 14, 36 and 41);

(PI) 5.1.3.81 confirming that all aspects of installation of the structural fire protection, including the structure, fire integrity, protection of stairways and lifts, cabin balconies, openings in "A" and "B" Class divisions, ventilation systems and windows and side scuttles, and the use of combustible material are in accordance with the approved plans (SOLAS 74/00/04/12/15/17 regs.II-2/4.4.4, 5.2, 5.3, 7.5, 7.8.2, 8.4, 8.5, 9, 10.6, 11, 13, 17, 20, 20-1 and FSS Code ch.13 sections 1 and 2) (SOLAS 74/88 regs.II-2/23 to 35);

(PI) 5.1.3.82 testing any manual and automatic fire doors, including the means of closing the openings in "A" and "B" Class divisions (SOLAS 74/88 regs.II-2/30 and 31);

(PI) 5.1.3.83 testing the means of closing the main inlets and outlets of all ventilation smoke extraction systems and proving that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/88 reg.II-2/32);

(PI) 5.1.3.84 confirming that stairways and ladders are so arranged as to provide a means of escape to the lifeboat and liferaft and liferaft embarkation deck from all passenger and crew spaces and from those spaces in which the crew is normally employed (SOLAS 74/00/16 regs.II- 2/13.3.2 and 13.7) and in particular that:

(PI) 5.1.3.84.1 below the bulkhead deck there are two means of escape from each watertight compartment, one being independent of watertight doors;

(PI) 5.1.3.84.2 above the bulkhead deck there are two means of escape from each vertical zone or similar such area, one leading directly to a stairway forming a vertical escape;

(PI) 5.1.3.84.3 the radiotelegraph station, if provided, has direct access to the open deck or is provided with two means of access or egress, one of which is a porthole or window of sufficient size;

(PI) 5.1.3.85 confirming that the means of escape from any special category spaces are generally in accordance with (PI) 5.1.3.84 (SOLAS 74/88 reg.II-2/28);

(PI) 5.1.3.86 confirming that in the machinery spaces there are two widely separated means of escape leading to the lifeboat and liferaft embarkation decks, including, when from a space below the bulkhead deck, a continuous fire shelter, and that two means of escape are provided for the main workshop located within the machinery space, as applicable (SOLAS 74/00/14 reg.II-2/13.4.1; FSS Code chapter 13) (SOLAS 74/88 reg.II-2/28);

(PI) 5.1.3.87 confirming the fire protection arrangements, including fire detection and sample extraction smoke detection systems for cargo spaces for cargo and dangerous goods and testing, as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 reg.II-2/39) (SOLAS 74/00/14 regs.II-2/7.6, 10.7.1 and 10.7.2; FSS Code chs.5, 9 and 10);

(PI) 5.1.3.88 confirming the fire protection arrangements, including fire detection and sample extraction smoke detection systems, where applicable for vehicle, special category and ro-ro spaces and testing, as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 regs.II-2/37, and 38) (SOLAS 74/00/15/17 reg.II-2/20 (except 20.5); FSS Code chs.5, 6, 7, 9, 10);

(PI) 5.1.3.89 confirming and testing, as appropriate, any fixed fire detection and alarm system, and any automatic sprinkler, fire detection and fire alarm system, as applicable, in machinery spaces, including enclosed spaces containing incinerators, accommodation, service and control spaces (SOLAS 74/88 reg.II-2/40) (SOLAS 74/00/06/10 reg.II-2/7 (except 7.5.5, 7.6 and 7.9); FSS Code chs.8 and 9);

(PI) 5.1.3.90 confirming and testing the special alarm and the public address system or other effective means of communication (SOLAS 74/88 reg.II-2/40) (SOLAS 74/00/06/10 reg.II-2/12; LSA Code ch.7);

(PI) 5.1.3.91 for passenger ships constructed on or after 1 July 2010, confirming the provision of a fixed fire detection and fire alarm system for passenger ships capable of remotely and individually identifying each detector and manually operated call point (SOLAS 74/06 reg.II-2/7.2.4);

(PI) 5.1.3.92 examining the helicopter facilities, including foam firefighting appliances when appropriate (SOLAS 74/00/16 reg.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8);

(PI) 5.1.3.93 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, fire detection, ventilation and boundary insulation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/88 regs.II-2/41 and 54) (SOLAS 74/00/08 reg.II-2/19);

(PI) 5.1.3.94 checking the provision and disposition of the survival craft and rescue boats and the arrangements for mustering passengers (SOLAS 74/88 regs III/11 to 16, 20 and 24);

(PI) 5.1.3.95 examining each survival craft, including its equipment, and that the required number of search and rescue locating devices are fitted in liferafts and those liferafts are clearly marked (SOLAS 74/88/00/02/08 regs.III/20, 21 and 26; LSA Code sections 2.3 to 2.5, 3.2 and 4.1 to 4.6);

(PI) 5.1.3.96 examining the embarkation arrangements for each survival craft and the testing of each launching appliance, including overload tests, tests to establish the lowering speed and the lowering of each survival craft to the water with the ship at its lightest seagoing draught, checking the recovery of each lifeboat (SOLAS 74/88 regs.III/11, 12, 13, 15, 20 and 48);

(PI) 5.1.3.97 deploying 50% of the MES after installation (LSA Code paragraph 6.2.2.2);

(PI) 5.1.3.98 examining each rescue boat, including its equipment; for inflatable rescue boats, confirming that they are stowed in a fully inflated condition (SOLAS 74/00/04 regs.III/21 and 26.3; LSA Code section 5.1 and MSC/Circ.809);

(PI) 5.1.3.99 examining the embarkation and recovery arrangements for each rescue boat and testing each launching and recovery appliance, including overload tests, tests to establish the lowering and recovery speeds and ensuring that each rescue boat can be lowered to the water and recovered with the ship at its lightest seagoing draught; the rescue boat(s) should be lowered to the water and its recovery demonstrated while underway at 5 knots (SOLAS 74/88 regs.III/14, 16, 17 and 20);

(PI) 5.1.3.100 examining the arrangements for mustering passengers (SOLAS 74/88 reg.III/24);

(PI) 5.1.3.101 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern (LSA Code section 4.4.6.5);

(PI) 5.1.3.102 confirming that there are posters or signs in the vicinity of survival craft and their launching stations (SOLAS 74/88 reg.III/9);

(PI) 5.1.3.103 examining the provision and stowage and checking the operation of two-way VHF radiotelephone apparatus[1] and search and rescue locating devices (SOLAS 74/88/08 reg.III/6);

(PI) 5.1.3.104 examining the provision and stowage of the distress flares and the line-throwing appliance, checking the provision and operation of onboard communications equipment and testing the means of operation of the general alarm system, verifying that the general alarm system is audible in accommodation, normal crew working spaces and on open decks (SOLAS 74/88 reg.III/6);

(PI) 5.1.3.105 examining the provision, disposition and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets,[*2] immersion suits and thermal protective aids (SOLAS 74/88/06 regs.III/7, 21, 22 and 26; LSA Code section 2.1-2.5 and 3.3);

(PI) 5.1.3.105.1 checking that the life-saving appliances are of an international or vivid reddish orange, or a comparably highly visible colour on all parts where this will assist detection at sea (LSA Code section 1.2.2.6);

(PI) 5.1.3.105.2 checking the provision of lifejackets in three sizes (Infant, Child, Adult) and checking that they are marked by either weight or height, or by both weight and height (LSA Code section 2.2.1.1); for passenger ships on voyages less than 24 h, checking that the number of infant lifejackets is equal to at least 2.5% of the number of passengers on board and for passenger ships on voyages 24 h or greater, checking that infant lifejackets are provided for each infant on board (SOLAS 74/06 reg.III/7.2.1);

(PI) 5.1.3.105.3 checking that immersion suits designed to be worn in conjunction with a lifejacket are suitably marked (LSA Code section 2.3.1);

[1] Expired primary batteries, which complied with the requirements of paragraph 12.6 of *Revised recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.149 (77)), could be used for no other purpose than to examine and check the operation of two-way VHF radiotelephone apparatus.

[2] SOLAS Regulations III/7.2.1.1, 7.2.1.2 and 7.2.1.5 should be considered

(PI) 5.1.3.106 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 regs.II-1/42 and III/11);

(PI) 5.1.3.107 checking that means of rescue is provided on ro-ro passenger ships (SOLAS 74/00 reg.III/26.4);

(PI) 5.1.3.108 checking that a helicopter pick-up area is provided on ro-ro passenger ships (SOLAS 74/00 reg.III/28);

(PI) 5.1.3.109 checking that a decision support system is provided for the master (SOLAS 74/00 reg.III/29; SOLAS 74/06 regs.II-2/21 and 22);

(PI) 5.1.3.110 checking the electromagnetic compatibility of electrical and electronic equipment on or in the vicinity of the bridge (SOLAS 74/00 reg.V/17);

(PI) 5.1.3.111 examining the provision and positioning and checking the operation of, as appropriate, the navigation lights, shapes and sound signalling equipment (International Regulations for Preventing Collisions at Sea in force, rules 20 to 24, 27 to 30 and 33);

(PI) 5.1.1.112 checking the provision and specification of the daylight signalling lamp (SOLAS 74/88 reg.V/11);

(PI) 5.1.3.113 checking, as appropriate, the provision and operation of the following equipment (SOLAS 74/00 reg.V/19):

(PI) 5.1.3.113.1 the magnetic compass, including examining the siting, movement, illumination and a pelorus or compass bearing device (SOLAS 74/00 reg.V/19);

(PI) 5.1.3.113.2 that nautical charts and nautical publications necessary for the intended voyage are available and have been updated and, where ECDIS is used, that the electronic charts have been updated and the required backup system is provided and updated (SOLAS 74/00/09reg.V/19);

(PI) 5.1.3.113.3 global navigation satellite receiver or terrestrial radionavigation system;

(PI) 5.1.3.113.4 sound reception system, when bridge is totally enclosed;

(PI) 5.1.3.113.5 means of communication to emergency steering position, where provided;

(PI) 5.1.3.113.6 spare magnetic compass;

(PI) 5.1.3.113.7 daylight signalling lamp;

(PI) 5.1.3.113.8 echo-sounding device, including examining the display for good access, viewing and lighting;

(PI) 5.1.3.113.9 radar(s), including examining the waveguide and cable runs for routeing and protection and the display unit confirming lighting, plotting facilities, correct operation of all controls, functions and the true-motion facility if provided;

(PI) 5.1.3.113.10 electronic plotting aid, automatic tracking aid or automatic radar plotting aid as appropriate, using the appropriate test facilities;

(PI) 5.1.3.113.11 speed and distance measuring device;

(PI) 5.1.3.113.12 transmitting heading device providing heading information to radar, plotting aids and automatic identification system equipment and distance devices;

(PI) 5.1.3.113.13 heading or track control system;

(PI) 5.1.3.113.14 BNWAS;

(PI) 5.1.3.114 checking for the provision, specification, operation and annual performance test of the voyage data recorder (SOLAS 74/00/04 reg.V/20);

(PI) 5.1.3.115 checking that a valid conformance test report of the long-range identification and tracking system is available on board (SOLAS 74/04 reg.V/19-1);

(PI) 5.1.3.116 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided (SOLAS 74/00/02 reg.V/21);

(PI) 5.1.3.117 checking the provision of the pilot transfer arrangement, the access to the ship's deck and the associated equipment and lighting, checking the operation of the pilot ladders and combination arrangements, where applicable (SOLAS 74/00/10 reg.V/23);

(PI) 5.1.3.118 examining the position, physical and electromagnetic protection and illumination of each radio installation (SOLAS 74/88 reg.IV/6);

(PI) 5.1.3.119 confirming the provision of equipment for the radio installation with due regard to the declared sea areas in which the ship will trade and the declared means of maintaining availability of functional requirements (SOLAS 74/88 regs.III/6, IV/7 to 11, 14 and 15);

(PI) 5.1.3.120 confirming the ability to initiate the transmission of ship-to-shore distress alerts by at least two separate and independent means, each using a different radio communication service, from the position from which the ship is normally navigated (SOLAS 74/88/06 regs.IV/4, 7 to 11);

(PI) 5.1.3.121 examining all antennas, including:

(PI) 5.1.3.121.1 visually checking all antennas, including recognized mobile satellite service antennas, and feeders for satisfactory siting and absence of defects (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.121.2 checking insulation and safety of all antennas;

(PI) 5.1.3.122 examining the reserve source of energy, including:

(PI) 5.1.3.122.1 checking there is sufficient capacity to operate the basic or duplicated equipment for 1 hour or 6 hours, as appropriate (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.122.2 and, if the reserve source of energy is a battery:

(PI) 5.1.3.122.2.1 checking its siting and installation (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.122.2.2 where appropriate, checking its condition by specific gravity measurement or voltage measurement;

(PI) 5.1.3.122.2.3 with the battery off charge, and the maximum required radio installation load connected to the reserve source of energy, checking the battery voltage and discharge current;

(PI) 5.1.3.122.2.4 checking that the charger or chargers are capable of recharging the reserve battery within 10 hours (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.123 examining the VHF transceiver(s), including:

(PI) 5.1.3.123.1 checking for operation on channels 6, 13 and 16 (SOLAS 74/88 regs.IV/7 and 14);

(PI) 5.1.3.123.2 checking frequency tolerance, transmission line quality and radio frequency power output (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.123.3 checking for correct operation of all controls including priority of control units (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.123.4 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.123.5 checking the operation of the VHF control unit(s) or portable VHF equipment provided for navigational safety (SOLAS 74/88 reg.IV/6);

(PI) 5.1.3.123.6 checking for correct operation by on-air contact with a coast station or other ship;

(PI) 5.1.3.124 examining the VHF DSC controller and channel 70 DSC watch receiver, including:

(PI) 5.1.3.124.1 performing an off-air check confirming the correct Maritime Mobile Service Identity is programmed in the equipment (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.124.2 checking for correct transmission by means of a routine or test call to a coast station, other ship, onboard duplicate equipment or special test equipment;

(PI) 5.1.3.124.3 checking for correct reception by means of a routine or test call from a coast station, other ship, onboard duplicate equipment or special test equipment;

(PI) 5.1.3.124.4 checking the audibility of the VHF/DSC alarm;

(PI) 5.1.3.124.5 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.125 examining the MF/HF radiotelephone equipment, including:

(PI) 5.1.3.125.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.125.2 checking the antenna tuning in all appropriate bands;

(PI) 5.1.3.125.3 checking the equipment is within frequency tolerance on all appropriate bands (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.125.4 checking for correct operation by contact with a coast station and/or measuring transmission line quality and radio frequency output;

(PI) 5.1.3.125.5 checking receiver performance by monitoring known stations on all appropriate bands;

(PI) 5.1.3.125.6 if control units are provided outside the navigating bridge, checking the control unit on the bridge has first priority for the purpose of initiating distress alerts (SOLAS 74/88 regs.IV/9, 10, 11 and 14);

(PI) 5.1.3.125.7 checking the correct operation of the radiotelephone alarm signal generating device on a frequency other than 2182 kHz;

(PI) 5.1.3.126 examining the HF radiotelex equipment, including:

(PI) 5.1.3.126.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.126.2 confirming that the correct selective calling number is programmed in the equipment;

(PI) 5.1.3.126.3 checking correct operation by inspection of recent hard copy or by a test with a coast radio station (SOLAS 74/88 regs.IV/10 and 11);

(PI) 5.1.3.127 examining the MF/HF DSC controller(s), including:

(PI) 5.1.3.127.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 reg.IV/13);

(PI) 5.1.3.127.2 confirming that the correct Maritime Mobile Service Identity is programmed in the equipment;

(PI) 5.1.3.127.3 checking the off-air self-test program;

(PI) 5.1.3.127.4 checking operation by means of a test call on MF and/or HF to a coast radio station if the rules of the berth permit the use of MF/HF transmissions (SOLAS 74/88 regs.IV/9 to 11);

(PI) 5.1.3.127.5 checking the audibility of the MF/HF DSC alarm;

(PI) 5.1.3.128 examining the MF/HF DSC watch receiver(s), including:

(PI) 5.1.3.128.1 confirming that only distress and safety DSC frequencies are being monitored (SOLAS 74/88 regs.IV/9 to 12);

(PI) 5.1.3.128.2 checking that a continuous watch is being maintained while keying MF/HF radio transmitters (SOLAS 74/88 reg.IV/12);

(PI) 5.1.3.128.3 checking for correct operation by means of a test call from a coast station or other ship;

(PI) 5.1.3.129 examining the recognized mobile satellite service ship earth station(s), including:

(PI) 5.1.3.129.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy, and that where an uninterrupted supply of information from the ship's navigational or other equipment is required ensuring such information remains available in the event of failure of the ship's main or emergency source of electrical power (SOLAS 74/88 regs.IV/13 and 14);

(PI) 5.1.3.129.2 checking the distress function by means of an approved test procedure where possible (SOLAS 74/88 regs.IV/10, 12 and 14);

(PI) 5.1.3.129.3 checking for correct operation by inspection of recent hard copy or by test call;

(PI) 5.1.3.130 if appropriate, examining the NAVTEX equipment (SOLAS 74/88 regs.IV/7, 12 and 14), including:

(PI) 5.1.3.130.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;

(PI) 5.1.3.130.2 running the self-test program if provided;

(PI) 5.1.3.131 examining the enhanced group call equipment (SOLAS 74/88 regs.IV/7 and 14), including:

(PI) 5.1.3.131.1 checking for correct operation and area by monitoring incoming messages or by inspecting recent hard copy;

(PI) 5.1.3.131.2 running the self-test program if provided;

(PI) 5.1.3.132 if appropriate, examining the radio equipment for receipt of maritime safety information by HF NBDP (SOLAS 74/88 regs.IV/7, 12 and 14), including:

(PI) 5.1.3.132.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;

(PI) 5.1.3.132.2 running the self-test program if provided;

(PI) 5.1.3.133 examining the 406 MHz satellite EPIRB (SOLAS 74/88 regs.IV/7 and 14), including:

(PI) 5.1.3.133.1 checking position and mounting for float-free operation;

(PI) 5.1.3.133.2 carrying out visual inspection for defects;

(PI) 5.1.3.133.3 carrying out the self-test routine;

(PI) 5.1.3.133.4 checking that the unique beacon identification code is clearly marked on the outside of the equipment and, where possible, decoding the unique beacon identification code confirming it is correct;

(PI) 5.1.3.133.5 checking that the unique beacon identification code programmed in the EPIRB corresponds with the unique beacon identification code assigned by or on behalf of the Administration;

(PI) 5.1.3.133.6 checking that the MMSI number if encoded in the beacon corresponds with the MMSI number assigned to the ship;

(PI) 5.1.3.133.7 checking the battery expiry date;

(PI) 5.1.3.133.8 if provided, checking the hydrostatic release and its expiry date;

(PI) 5.1.3.134 examining the two-way VHF radiotelephone apparatus (SOLAS 74/88 reg.III/6), including:

(PI) 5.1.3.134.1 checking for correct operation on channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.134.2 checking the battery charging arrangements where rechargeable batteries are used (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.134.3 checking the expiry date of primary batteries where used (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.134.4 where appropriate, checking any fixed installation provided in a survival craft (SOLAS 74/88 reg.IV/14);

(PI) 5.1.3.135 examining the search and rescue locating device(s) (SOLAS 74/88/08 reg.III/6 and regs.IV/7 and 14), including:

(PI) 5.1.3.135.1 checking the position and mounting;

(PI) 5.1.3.135.2 monitoring response on ship's 9 GHz radar;

(PI) 5.1.3.135.3 checking the battery expiry date;

(PI) 5.1.3.136 examining the test equipment and spares carried to ensure carriage is adequate in accordance with the sea areas in which the ship trades and the declared options for maintaining availability of the functional requirements (SOLAS 74/88 reg.IV/15);

(PI) 5.1.3.137 checking the distress panel installed at the conning position; or, where applicable, checking an additional EPIRB is placed near the conning position (SOLAS 74/88 reg.IV/6);

(PI) 5.1.3.138 checking that positional information is provided continuously and automatically to all communications equipment included in the initial distress alert (SOLAS 74/88 reg.IV/6);

(PI) 5.1.3.139 checking the distress alarm panel installed at the conning position and its visual and aural indications of received distress alerts (SOLAS 74/88 reg.IV/6);

(PI) 5.1.3.140 checking the provision and operation of the means for two-way on-scene communication for search and rescue purposes and its operation on 121.5 MHz and 123.1 MHz from the position from which the ship is normally navigated (SOLAS 74/88 reg.IV/7);

(PI) 5.1.3.141 confirming that the ship's identification number is permanently marked (SOLAS 74/02 reg.XI-1/3);

(PI) 5.1.3.142 checking the provision and operation of the automatic identification system (SOLAS 74/00/04 reg.V/19);

(PI) 5.1.3.143 for passenger ships carrying more than 36 passengers constructed on or after 1 July 2010, checking the provision of a suitably located means for fully recharging breathing air cylinders, free from contamination (SOLAS 74/08 reg.II-2/10.10.2.6);

(PI) 5.1.3.144 confirming that installed materials do not contain asbestos[1] (SOLAS 74/09 reg.II-1/3-5);

(PI) 5.1.3.145 confirming the provision of means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders (SOLAS 74/08 reg.II-1/3-9);

(PI) 5.1.3.146 for passenger ships constructed on or after 1 July 2010 and having a length of 120 m or more or having three or more main vertical zones, checking the designation of safe areas (SOLAS 74/06 reg.II-2/21);

(PI) 5.1.3.147 for passenger ships constructed on or after 1 July 2010, checking the provision of a safety centre (SOLAS 74 reg.II-2/23) and associated ventilation requirements (SOLAS 74/06 reg.II-2/8.2); and

(PI) 5.1.3.148 confirming, where applicable, that an appropriate portable atmosphere testing instrument or instruments[2] is on board, and that suitable means are provided for the calibration of all such instruments;[3] and checking the appropriateness of the testing and calibration (SOLAS 74/14 reg.XI-1/7).

(PI) 5.1.4 For the hull, machinery and equipment of passenger ships using natural gas as fuel the additional requirements for the survey during construction and after installation should consist of:

(PI) 5.1.4.1 confirming that the arrangement of the accommodation, fuel containment systems, service and machinery spaces are in accordance with the approved plans and control, monitoring and safety systems are satisfactory (IGF Code chs.4, 5, 6, 8, 9 and 15);

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[1] Refer to the *Unified interpretation of SOLAS regulation II-1/3-5* (MSC.1/Circ.1379 and MSC.1/Circ.1426/Rev.1).

[2] Refer to the *Guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces as required by SOLAS regulation XI-1/7* (MSC.1/Circ.1477).

[3] Refer to the *Guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces as required by SOLAS regulation XI-1/7* (MSC.1/Circ.1477).

(PI) 5.1.4.2 confirming the inert gas system is satisfactory (IGF Code ch.6);

(PI) 5.1.4.3 confirming the ventilation arrangements are satisfactory (IGF Code chs.12 and 13);

(PI) 5.1.4.4 confirming that the fuel containment systems are arranged and installed in accordance with the approved plans, internally examining the fuel containments and ensuring that the appropriate testing is carried out (IGF Code chs.6 and 16);

(PI) 5.1.4.5 examining the electrical installations with particular reference to the certified safe type equipment fitted in gas-dangerous spaces and zones (IGF Code chs.12 and 14);

(PI) 5.1.4.6 examining the arrangements for the fire protection and fire extinction (IGF Code ch.11);

(PI) 5.1.4.7 examining the fire pump capacity and working pressure in relation to the water spray system, if the water spray system is part of the fire main system (IGF Code para.11.4.1);

(PI) 5.1.4.8 examining the isolating valves of the fire main, when the fuel storage tank or tanks are located on the open deck (IGF Code para.11.4.2);

(PI) 5.1.4.9 examining the water spray system arrangement for fuel storage tanks(s) on open deck including remote operation (IGF Code para.11.5);

(PI) 5.1.4.10 examining the fixed dry chemical powder fire-extinguishing system for the bunkering station area (IGF Code para.11.6.1);

(PI) 5.1.4.11 examining the portable dry powder extinguisher (IGF Code para.11.6.2);

(PI) 5.1.4.12 examining the fixed fire detection and alarm system (IGF Code section 11.7);

(PI) 5.1.4.13 examining the machinery installations (IGF Code ch.10);

(PI) 5.1.4.13.1 ventilation systems;

(PI) 5.1.4.13.2 dual-fuel engines;

(PI) 5.1.4.13.3 gas-only engines;

(PI) 5.1.4.13.4 multi-fuel engines;

(PI) 5.1.4.13.5 main and auxiliary boilers;

PI) 5.1.4.13.6 gas turbines.

(PI) 5.1.5 For the hull, machinery and equipment of passenger ships the check that the required documentation has been placed on board should consist of:

(PI) 5.1.5.1 confirming that the stability information and damage control plans and damage control booklets have been provided (SOLAS 74/88 regs.II-1/22 and 23) (SOLAS 74/06/17 regs.II-1/5-1 and 19);

(PI) 5.1.5.2 checking, where applicable, that the noise survey report as required by the Code on Noise Levels on Board Ships is available on board (SOLAS 74/12/16 reg.II-1/3-12);

(PI) 5.1.5.3 checking the provision of a ship-specific emergency towing procedure (SOLAS 74/08 reg.II-1/3-4);

(PI) 5.1.5.4 confirming that the manoeuvring booklet has been provided and that the manoeuvring information has been displayed on the navigating bridge (SOLAS 74/88 reg.II-1/28);

(PI) 5.1.5.5 confirming that documented operating procedures for closing and securing the openings in special category spaces and ro-ro spaces are available on board (SOLAS 74/06/17 reg.II-1/23);

(PI) 5.1.5.6 where applicable, confirming that the approved Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units is on board (SOLAS 74/98/02 reg.VI/5.6);

(PI) 5.1.5.7 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 74/00/06/15 regs.II-1/55, II-2/17 and III/38 and IGF Code ch.2);

(PI) 5.1.5.8 confirming that the fire control plans are permanently exhibited or, alternatively, that emergency booklets have been provided to each officer and a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/00 regs.II-2/15.2.4 and 15.3.2) (SOLAS 74/88 reg.II-2/20); and that the fire control plan is in the language required by the Administration;

(PI) 5.1.5.9 confirming that the maintenance plans have been provided (SOLAS 74/88 regs.II-2/14.2.2 and 14.3);

(PI) 5.1.5.10 confirming that the training manuals and the fire safety operational booklets have been provided (SOLAS 74/88 regs.II-2/15.2.3 and 16.2);

(PI) 5.1.5.11 confirming, when appropriate, that the ship is provided with a document indicating compliance with the special requirements for carrying dangerous goods (SOLAS 74/00/08 reg.II-2/19.4) (SOLAS 74/88 regs.II-2/41 and 54.3);

(PI) 5.1.5.12 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places, and that they are in a language understood by the persons on board (SOLAS 74/00/17 regs.III/8 and 37);

(PI) 5.1.5.13 confirming that ship-specific plans and procedures for recovery of persons from the water have been provided (SOLAS 74/12 reg.III/17-1);

(PI) 5.1.5.14 confirming that the training manual for the life-saving appliances has been provided and is available in the working language of the ship (SOLAS 74/00/04 reg.III/35);

(PI) 5.1.5.15 confirming that the checklist and instructions for MES, where appropriate, and onboard maintenance of the life-saving appliances have been provided (SOLAS 74/00 reg.III/36);

(PI) 5.1.5.16 confirming that a table or curve of residual deviations for the magnetic compass have been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/00 reg.V/19);

(PI) 5.1.5.17 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/00 regs.V/16 and 19);

(PI) 5.1.5.18 checking that the charts and nautical publications necessary for the intended voyage are available and have been updated (SOLAS 74/00 regs.V/19 and 27);

(PI) 5.1.5.19 checking that the International Code of Signals is available where the ship is required to carry a radio installation (SOLAS 74/88 reg.V/21);

(PI) 5.1.5.20 checking that records are provided identifying any pilot ladders placed into service (SOLAS 74/10 reg.V/23.2.4);

(PI) 5.1.5.21 confirming that a list showing the operational limitations imposed on the ship is kept on board (SOLAS 74/00 reg.V/30);

(PI) 5.1.5.22 checking that an illustrated table describing the life-saving signals to be used by ships, aircraft or persons in distress is available (SOLAS 74/00 reg.V/29);

(PI) 5.1.5.23 checking the carriage of operating manuals for all equipment (SOLAS 74/88 reg.IV/15);

(PI) 5.1.5.24 checking the carriage of service manuals for all equipment when at-sea maintenance is the declared option (SOLAS 74/88 reg.IV/15);

(PI) 5.1.5.25 checking for a valid radio licence issued by the flag Administration (ITU RR Article 24);

(PI) 5.1.5.26 checking the radio operators' certificates of competence (ITU RR Article 55);

(PI) 5.1.5.27 checking the emission on operational frequencies, coding and registration on the 406 MHz signal without transmission of a distress call to the satellite;

(PI) 5.1.5.28 checking the radio log (SOLAS 74/88 reg.IV/19 in force prior to 1 February 1992 and ITU RR App.11);

(PI) 5.1.5.29 checking the carriage of up-to-date ITU publications (ITU RR App.11);

(PI) 5.1.5.30 checking that the EPIRB has been subject to maintenance at intervals not exceeding five years at an approved shore-based maintenance facility;

(PI) 5.1.5.31 if possible, checking the emission on operational frequencies, coding and registration on the 121.5 MHz homing signal without transmission of the distress call to satellite system;

(PI) 5.1.5.32 confirming that a continuous synopsis record is provided (SOLAS 74/02 reg.XI-1/5); and

(PI) 5.1.5.33 checking that arrangements are provided to maintain records of navigational activities and daily reporting (SOLAS 74/00/03 reg.V/28).

(PI) 5.1.6 For the hull, machinery and equipment of passenger ships the completion of the initial survey should consist of:

(PI) 5.1.6.1 after a satisfactory survey, issuing the Passenger Ship Safety Certificate and its associated Record of Equipment (Form P).

(PR) **5.2** **Renewal surveys** – see part "General", section 4.5

(PR) 5.2.1 For the hull, machinery and equipment of passenger ships the examination of current certificates and other records should consist of:

(PR) 5.2.1.1 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(PR) 5.2.1.2 checking, as appropriate, the validity of the Polar Ship Certificate;

(PR) 5.2.1.3 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(PR) 5.2.1.4 checking the validity of the International Ship Security Certificate;

(PR) 5.2.1.5 checking the validity of the International Oil Pollution Prevention Certificate;

(PR) 5.2.1.6 checking the certificates of class, if the ship is classed with a classification society;

(PR) 5.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(PR) 5.2.1.8 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(PR) 5.2.1.9 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(PR) 5.2.1.10 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(PR) 5.2.1.11 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(PR) 5.2.1.12 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(PR) 5.2.1.13 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(PR) 5.2.1.14 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(PR) 5.2.1.15 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(PR) 5.2.1.16 checking, where applicable, that the noise survey report as required by the Code on Noise Levels on Board Ships is available on board (SOLAS 74/12/16 reg.II-1/3-12);

(PR) 5.2.1.17 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 74/00/06/15 regs.II-1/55, II-2/17 and III/38 and IGF Code ch.2);

(PR) 5.2.1.18 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(PR) 5.2.1.19 checking that the routine surveys of the boilers and other pressure vessels, as determined by the Administration, have been carried out as required and that safety devices, such as the boiler safety valves, have been tested;

(PR) 5.2.1.20 checking that, as appropriate, the hull and machinery have been presented for survey in accordance with the continuous survey scheme approved by the Administration or a classification society;

(PR) 5.2.1.21 confirming that the opening and the closing and locking of sidescuttles positioned below the margin line or the bulkhead deck, as applicable, are being recorded in the logbook (SOLAS 74/88 reg.II-1/17), (SOLAS 74/06/17 reg.II-1/15);

(PR) 5.2.1.22 confirming that the closure of the cargo loading doors and the opening and closing of any doors at sea required for the operation of the ship or the embarking and disembarking of passengers are being recorded in the logbook (SOLAS 74/88 reg.II-1/20-1) (SOLAS 74/06/17 reg.II-1/22);

(PR) 5.2.1.23 confirming that the stability information and damage control plans and damage control booklets are readily available (SOLAS 74/88 regs.II-1/22 and 23) (SOLAS 74/06/17 regs.II-1/5-1 and 19);

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(PR) 5.2.1.24 confirming from the logbook entries that the openings required to be closed at sea are being kept closed and that the required operational tests and inspections of watertight doors, etc., are being carried out (SOLAS 74/88 regs.II-1/24 and 25) (SOLAS 74/06/17 regs.II-1/21 and 22);

(PR) 5.2.1.25 confirming that documented operating procedures for closing and securing the openings in special category spaces and ro-ro spaces are available on board (SOLAS 74/06/17 reg.II-1/23);

(PR) 5.2.1.26 confirming that the manoeuvring booklet is readily available and that the manoeuvring information is displayed on the navigating bridge (SOLAS 74/88 reg.II-1/28);

(PR) 5.2.1.27 confirming that the fire control plans are permanently exhibited or, alternatively, that emergency booklets have been provided and a duplicate of the plans or the emergency booklet is available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/88 reg.II-2/20);

(PR) 5.2.1.28 confirming that the maintenance plans have been provided (SOLAS 74/00 regs.II-2/14.2.2 and 14.3);

(PR) 5.2.1.29 confirming that the training manuals and the fire safety operational booklets have been provided (SOLAS 74/00 regs.II-2/15.2.3 and 16.2);

(PR) 5.2.1.30 checking whether any fire has occurred on board necessitating the operation of the fixed fire-extinguishing systems or the portable fire extinguishers since the last survey and the entries into the ship's logbook;

(PR) 5.2.1.31 checking, when appropriate, that the ship is provided with a document indicating compliance with the special requirements for carrying dangerous goods (SOLAS 74/00/08 reg.II-2/19.4) (SOLAS 74/88 reg.II-2/54.3);

(PR) 5.2.1.32 confirming that ship-specific plans and procedures for recovery of persons from the water have been provided (SOLAS 74/12 reg.III/17-1);

(PR) 5.2.1.33 confirming, when appropriate, that there is a special list, manifest or stowage plan for the carriage of dangerous goods (SOLAS 74/88 reg.VII/5);

(PR) 5.2.1.34 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places, and that they are in a language understood by the persons on board (SOLAS 74/00/17 regs.III/8 and 37);

(PR) 5.2.1.35 confirming that, if applicable, a factual statement issued by the manufacturer of the lifeboat release mechanism is available, confirming the successful overhaul examination of a mechanism compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code, or, alternatively, that a statement of acceptance of the installation of a replacement release and retrieval system to an existing lifeboat is available (SOLAS 74/11 reg.III/1.5; LSA Code section 4.4.7.6);

(PR) 5.2.1.36 checking that logbook entries are being made (SOLAS 74/00/13 regs.III/19 and 20) (SOLAS 74/17 regs.II-1/19-1), in particular

(PR) 5.2.1.36.1 the date when the last full muster of the passengers and crew for boat and fire drill took place, the date when the last enclosed space entry rescue drills took place, and the date when the last damage control drills took place;

(PR) 5.2.1.36.2 the records indicating that on voyages where passengers are scheduled to be on board for more than 24 h, musters of newly embarked passengers have taken place prior to or immediately upon departure;

(PR) 5.2.1.36.3 the records indicating that the lifeboat equipment was examined at that time and found to be complete;

(PR) 5.2.1.36.4 the last occasion when the lifeboats were swung out and when each one was lowered into the water;

(PR) 5.2.1.36.5 the records indicating that crew members have received the appropriate onboard training;

(PR) 5.2.1.37 confirming that the training manual and training aids for the life-saving appliances are available on board in the working language of the ship (SOLAS 74/00/04 reg.III/35);

(PR) 5.2.1.38 confirming that the instructions for onboard maintenance of the life-saving appliances is on board (SOLAS 74/00 reg.III/36);

(PR) 5.2.1.39 checking by the logbook entries that the testing and the emergency drills of the steering gear have been carried out (SOLAS 74/00 reg.V/26);

(PR) 5.2.1.40 confirming that a table or curve of residual deviations for the magnetic compass is available and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/00 reg.V/19);

(PR) 5.2.1.41 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/00 reg.V/16);

(PR) 5.2.1.42 checking that the charts and nautical publications necessary for the intended voyage are available and have been updated (SOLAS 74/00 reg.V/27);

(PR) 5.2.1.43 checking that the compass deviation book is properly maintained (SOLAS 74/00 reg.V/19);

(PR) 5.2.1.44 checking that records are maintained identifying any pilot ladders placed into service and any repair effected (SOLAS 74/10 reg.V/23.2.4);

(PR) 5.2.1.45 confirming that a list showing the operational limitations imposed on the ship is kept on board (SOLAS 74/00 reg.V/30);

(PR) 5.2.1.46 checking that an illustrated table describing the life-saving signals to be used by ships, aircraft or persons in distress is available (SOLAS 74/00 reg.V/29);

(PR) 5.2.1.47 confirming the provisions of (PI) 5.1.5.17 to (PI) 5.1.5.23 except (PI) 5.1.5.20;

(PR) 5.2.1.48 confirming that a record has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Radio Regulations (SOLAS 74/88 reg.IV/17);

(PR) 5.2.1.49 checking documentary evidence that the actual capacity of the battery has been proved in port within the last 12 months (SOLAS 74/88 reg.IV/13);

(PR) 5.2.1.50 if applicable, checking that a list of all limitations on the operation of a passenger ship is kept on board and updated;

(PR) 5.2.1.51 where applicable, confirming that the approved Cargo Securing Manual for ships carrying cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units is on board (SOLAS 74/98/02 reg.VI/5.6);

(PR) 5.2.1.52 confirming that a continuous synopsis record is provided (SOLAS 74/02 reg.XI-1/5);

(PR) 5.2.1.53 checking that the annual test has been carried out for the Satellite EPIRB and, if applicable, that shore-based maintenance has been carried out at intervals not exceeding five years (SOLAS 74/04 reg.IV/15);

(PR) 5.2.1.54 checking that arrangements are provided to maintain records of navigational activities and daily reporting (SOLAS 74/00/03 reg.V/28); and

(PR) 5.2.1.55 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(PR) 5.2.2 For the hull, machinery and equipment of passenger ships the renewal survey should consist of:

(PR) 5.2.2.1 examining the outside of the ship's bottom, including the bottom and bow plating, keel, bilge keels, stem, stern frame, rudder, sea chests and strainers, noting the clearance measured in the rudder bearings, examining the propeller and shaft seals, as far as practicable, and noting the clearance measured in the propeller shafts (SOLAS 74/88 reg.I/7(b)(ii));

(PR) 5.2.2.2 examining the arrangements for subdivision, including the ship's stability in the damaged condition, and checking the subdivision load lines (SOLAS 74/88 regs.II-1/4 to 8, 13 and 16) (SOLAS 74/06/12/17/18 regs.II-1/8, 8-1, 14 and 18);

(PR) 5.2.2.3 confirming the provision of operational information to the master for safe return to port after a flooding casualty by onboard stability computer or shore-based support (SOLAS 74/12/17/18 reg.II-1/8-1);

(PR) 5.2.2.4 checking the ballasting arrangements (SOLAS 74/88 reg.II-1/9) (SOLAS 74/06/17 reg.II-1/20);

(PR) 5.2.2.5 confirming that dedicated seawater ballast tanks have been coated in accordance with resolution MSC.215(82), as amended, when appropriate (SOLAS 74/00/06 reg.II-1/3-2);

(PR) 5.2.2.6 confirming when appropriate that the maintenance of the protective coating is included in the overall ship's maintenance system (SOLAS 74/00/06 reg.II-1/3-2);

(PR) 5.2.2.7 examining the collision and other watertight bulkheads required for the ship's subdivision (SOLAS 74/88 regs.II-1/10, 14, 15 and 18) (SOLAS 74/06/17 regs.II-1/10, 11, 12, 13 and 16);

(PR) 5.2.2.8 confirming that the watertight integrity has been maintained where pipes, scuppers, etc., pass through subdivision watertight bulkheads (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.9 confirming that a diagram is provided on the navigating bridge showing the location of the watertight doors together with indicators showing whether the doors are open or closed (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.10 testing the operation of the watertight doors both from the navigating bridge in the event of an emergency and locally at the door itself (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13) and, in particular, that they are:

(PR) 5.2.2.10.1 operable locally from each side of the bulkhead;

(PR) 5.2.2.10.2 provided with devices giving an indication of whether the door is open or closed at all remote operating positions;

(PR) 5.2.2.10.3 provided with an audible alarm that is distinct from any other alarm in the area and, when appropriate, an intermittent visual signal;

(PR) 5.2.2.10.4 provided with control handles on each side of the bulkhead so that a person may hold both handles in the open position and pass safely through the watertight door without accidentally setting the power closing mechanism into operation;

(PR) 5.2.2.11 testing the remote hand-operation to close the power-operated sliding watertight door from an accessible position above the bulkhead deck (SOLAS 74/88/14 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.12 confirming that the watertight doors and their indicating devices are operable in the event of a failure of the main and emergency sources of power (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.13 checking, when appropriate, any watertight doors that are not required to be closed remotely, fitted in watertight bulkheads dividing 'tween deck spaces, and confirming that a notice is affixed concerning their closure (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.14 confirming that a notice is affixed to any portable plates on bulkheads in machinery spaces concerning their closure and, if appropriate, testing any power-operated watertight door fitted in lieu (SOLAS 74/88 reg.II-1/15) (SOLAS 74/06/17 reg.II-1/13);

(PR) 5.2.2.15 examining the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the margin line (SOLAS 74/88 reg.II-1/17);

(PR) 5.2.2.16 examining the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the bulkhead deck (SOLAS 74/06/17 reg.II-1/15);

(PR) 5.2.2.17 confirming that valves for closing the main and auxiliary sea inlets and discharges in the machinery spaces are readily accessible and indicators showing the status of the valves are provided (SOLAS 74/88 reg.II-1/17) (SOLAS 74/06/17 reg.II-1/15);

(PR) 5.2.2.18 confirming that gangway, cargo and coaling ports fitted below the margin line may be effectively closed and that the inboard ends of any ash or rubbish chutes are fitted with an effective cover (SOLAS 74/88 reg.II-1/17);

(PR) 5.2.2.19 confirming that gangway, cargo and fuelling ports fitted below the bulkhead deck may be effectively closed and that the inboard ends of any ash or rubbish chutes are fitted with an effective cover (SOLAS 74/06/17 reg.II-1/15);

(PR) 5.2.2.20 examining the arrangements to maintain the watertight integrity above the margin line or the bulkhead deck as applicable (SOLAS 74/88 reg.II-1/20) (SOLAS 74/06/17 reg.II-1/17);

(PR) 5.2.2.21 examining the arrangements for the bilge pumping and confirming that each bilge pump and the bilge pumping system provided for each watertight compartment are working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(PR) 5.2.2.22 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 reg.II-1/21) (SOLAS 74/05/17 reg.II-1/35-1);

(PR) 5.2.2.23 examining visually the drainage facilities for blockage or other damage and confirming the provision of means to prevent blockage of drainage arrangements, for closed vehicle and ro-ro spaces and special category spaces where fixed pressure water-spraying systems are used (SOLAS 74/08 reg.II-2/20.6.1.5);

(PR) 5.2.2.24 examining, when appropriate, the means of indicating the status of any bow doors and any leakage therefrom (SOLAS 74/88 reg.II-1/23-2);

(PR) 5.2.2.25 confirming, that the arrangement for monitoring special category spaces or ro-ro spaces, when fitted, is satisfactory (SOLAS 74/06/17 reg.II-1/23);

(PR) 5.2.2.26 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are being maintained so as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 reg.II-1/26);

(PR) 5.2.2.27 confirming that normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 reg.II-1/26);

(PR) 5.2.2.28 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 reg.II-1/26);

(PR) 5.2.2.29 examining, where practicable, the means provided to protect against overpressure in the parts of main, auxiliary and other machinery that is subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 reg.II-1/27);

(PR) 5.2.2.30 examining, when appropriate, the crankcase explosion relief devices fitted to internal combustion engines and confirming that they are arranged so as to minimize the possibility of injury to personnel (SOLAS 74/88 reg.II-1/27);

(PR) 5.2.2.31 confirming that the automatic shut-off arrangements fitted to the main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are being properly maintained (SOLAS 74/88 reg.II-1/27);

(PR) 5.2.2.32 confirming, as far as practicable, the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time, including the effectiveness of any supplementary means of manoeuvring or stopping the ship (SOLAS 74/88 reg.II-1/28);

(PR) 5.2.2.33 confirming that the main and auxiliary steering gear are being properly maintained, are arranged so that the failure of one does not render the other inoperative and that the auxiliary steering gear is capable of being brought speedily into action in an emergency[1] (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.34 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.35 confirming that relief valves fitted to the steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces are being maintained and are set to a pressure not exceeding the design pressure (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.36 confirming that the main or auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.37 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.38 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88/14 reg.II-1/29);

[1] For ships fitted with alternative propulsion and steering arrangements other than traditional arrangements, such as but not limited to azimuthing propulsors or water jet propulsion systems, refer to the *Unified interpretations of SOLAS regulations II-1/28, II-1/29 and II-1/30* (MSC.1/Circ.1416/Rev.1)

(PR) 5.2.2.39 confirming that the control system for the auxiliary steering gear, in the steering gear compartment and, if this gear is power-operated, from the navigating bridge, are operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.40 confirming that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.41 confirming that the means of communication between the bridge and the steering gear is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position is provided (SOLAS 74/14 regs.II-1/29 and SOLAS 74/00 reg.V/19);

(PR) 5.2.2.42 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/14 reg.II 1/29 and SOLAS 74/00 reg.II-1/29 and reg.V/19);

(PR) 5.2.2.43 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power-actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank to which a contents gauge is fitted with fixed piping (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.44 confirming that the steering gear compartment is readily accessible and is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88/14 reg.II-1/29);

(PR) 5.2.2.45 confirming that, with electric and electro-hydraulic steering gear, the means for indicating on the navigating bridge and at a main machinery control position that the motors are running and, as far as practicable, that the overload alarm and alarm for the loss of a phase in a three-phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 reg.II-1/30);

(PR) 5.2.2.46 confirming that the effective means of operation and control of the main and auxiliary machinery essential for the propulsion and the safety of the ship are being maintained, including, when appropriate, any means for remotely controlling the propulsion machinery from the navigating bridge (including the control, monitoring, reporting, alert and safety actions) (SOLAS 74/88/00/02 reg.II-1/31);

(PR) 5.2.2.47 confirming that arrangements for operating main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 reg.II-1/31);

(PR) 5.2.2.48 confirming that the means provided for manually overriding automatic controls are being maintained and that a failure does not prevent the use of the manual override (SOLAS 74/88 reg.II-1/31);

(PR) 5.2.2.49 confirming that the appropriate safety features fitted to the oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are being maintained (SOLAS 74/88 regs.II-I/32, 33 and 34);

(PR) 5.2.2.50 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 reg.II-I/35);

(PR) 5.2.2.51 when appropriate, confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 reg.II-I/36 and SOLAS 74/12/16 reg.II-1/3-12.2); or confirming that the ship was constructed to reduce onboard noise and to protect personnel from noise in accordance with the Code on Noise Levels on Board Ships, adopted by resolution MSC.337(91), as amended (SOLAS 74/12/16 reg.II-1/3-12);

(PR) 5.2.2.52 confirming that the engine-room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigation bridge is operating satisfactorily (SOLAS 74/88 reg.II-1/37);

(PR) 5.2.2.53 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily, including any appropriate means provided to any other positions from which the engines are controlled (SOLAS 74/88 reg.II-1/37);

(PR) 5.2.2.54 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 reg.II-1/38);

(PR) 5.2.2.55 confirming that precautions taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces are efficient;

(PR) 5.2.2.56 confirming that the means of ascertaining the amount of oil contained in any oil tank are in satisfactory working condition (SOLAS 74/88 reg.II-2/15) (SOLAS 74/00 reg.II-2/4.2.2.3.5);

(PR) 5.2.2.57 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in satisfactory working condition (SOLAS 74/88 reg.II-2/15) (SOLAS 74/00 reg.II-2/4.2.2.4);

(PR) 5.2.2.58 confirming that the electrical installations, including the main source of power and lighting systems, are being maintained (SOLAS 74/88 regs.II-1/40 and 41);

(PR) 5.2.2.59 confirming that the self-contained emergency source of electrical power and its associated systems are operating satisfactorily (SOLAS 74/88 reg.II-1/42);

(PR) 5.2.2.60 confirming that the starting arrangements of each emergency generating set are satisfactory (SOLAS 74/88 reg.II-1/44);

(PR) 5.2.2.61 checking, when appropriate, the disposition of and testing the supplementary emergency lighting (SOLAS 74/88 reg.II-1/42-1);

(PR) 5.2.2.62 for passenger ships constructed on or after 1 July 2010, checking the provision of supplementary lighting in all cabins, and checking that such lighting automatically illuminates and remains on for a minimum of 30 min when power to the normal cabin lighting is lost (SOLAS 74/06 reg.II-1/41.6);

(PR) 5.2.2.63 confirming that precautions provided against shock, fire and other hazards of electrical origin are being maintained (SOLAS 74/88 reg.II-1/45);

(PR) 5.2.2.64 confirming, when appropriate, that the arrangements for the machinery spaces being periodically unattended are satisfactory (SOLAS 74/88 reg.II-1/54);

(PR) 5.2.2.65 examining, where applicable, the alternative design and arrangements for machinery or electrical installations, low-flashpoint fuel storage and distribution systems, fire safety, or life-saving appliances and arrangements, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 74/00/06/15 regs.II-1/55, II-2/17 and III/38 and IGF Code ch.2);

(PR) 5.2.2.66 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship while the required pressure is maintained in the fire main (SOLAS 74/00/14 reg.II-2/10.2; FSS Code chs.2 and 12) (SOLAS 74/88 regs.II-2/4 and 19);

(PR) 5.2.2.67 for passenger ships designed to carry containers on or above the weather deck, as applicable, examining the water mist lance (SOLAS 74/00/14 reg.II-2/10.7.3);

(PR) 5.2.2.68 examining the provision and randomly examining the condition of the portable and non-portable fire extinguishers (SOLAS 74/00 reg.II-2/10.3; FSS Code ch.4) (SOLAS 74/88 reg.II-2/6);

(PR) 5.2.2.69 examining the fixed fire-extinguishing system for machinery, cargo, special category and vehicle spaces and confirming that its means of operation are clearly marked (SOLAS 74/00/12/14 regs.II-2/10.4, 10.5, 10.7.1, 10.7.2 and 20.6.1; FSS Code chs.5 to 7) (SOLAS 74/88 regs.II-2/5, 7, 9, 10 and 53);

(PR) 5.2.2.70 examining the special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power-operated and other doors, the stopping of ventilation and boiler forced and induced draught fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/00 regs.II-2/5.2, 8.3 and 9.5) (SOLAS 74/88 reg.II-2/11);

(PR) 5.2.2.71 checking that fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces, where applicable, are provided with two separate controls, one for opening of the gas piping and one for discharging the gas from the storage container, each of them located in a release box clearly identified for the particular space (SOLAS 74/08 reg.II-2/10.4, FSS Code ch.5.2.2.2);

(PR) 5.2.2.72 examining the fire-extinguishing arrangements in control stations, accommodation and service spaces (SOLAS 74/00 reg.II-2/10.6.1; FSS Code ch.8) (SOLAS 74/88 reg.II-2/36);

(PR) 5.2.2.73 examining, when applicable, the fire-extinguishing arrangements in cabin balconies (SOLAS 74/00 reg.II-2/10.6.1);

(PR) 5.2.2.74 examining the provision of fire-extinguishing systems for the spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces (SOLAS 74/00 regs.II-2/10.6.3 and 10.6.4; FSS Code chs.5, 6 and 7) (SOLAS 74/88 reg.II-2/15.2.5));

(PR) 5.2.2.75 examining the arrangements for oil fuel, lubricating oil and other flammable oils and testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/00 reg.II-2/4.2) (SOLAS 74/88 reg.II-2/15);

(PR) 5.2.2.76 examining and testing, as far as practicable, any fire detection and fire alarm arrangements in machinery spaces, including enclosed spaces containing incinerators, if applicable, accommodation and service spaces and control spaces (SOLAS 74/00/10 reg.II-2/7 (except 7.5.5, 7.6 and 7.9); FSS Code chs.8 and 9) (SOLAS 74/88 regs.II-2/11, 12, 13, 13-1, 14, 36 and 41);

(PR) 5.2.2.76.1 examining and testing, where applicable, any fire detection and fire alarm arrangements on cabin balconies. (SOLAS 74/00 reg.II-2/7.10);

(PR) 5.2.2.76.2 for passenger ships constructed on or after 1 July 2010, confirming the smoke detectors in cabins, when activated, are emitting, or causing to emit, an audible alarm within the space where they are located (SOLAS 74/06 regs.II-2/7.5.2 and 7.5.3.1);

(PR) 5.2.2.76.3 for passenger ships constructed on or after 1 July 2010, confirming detectors and manually operated call points of a fixed fire detection and fire alarm system can be remotely and individually identified (SOLAS 74/06 reg.II-2/7.2.4);

(PR) 5.2.2.77 confirming that the fire-fighters' outfits including their self-contained compressed air breathing apparatus, and the emergency escape breathing devices (EEBDs) are complete and in good condition and that the cylinders, including the spare cylinders, of the self-contained breathing apparatus, are suitably charged, and that onboard means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used are provided, and that two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe is provided (SOLAS 74/00/12 regs.II-2/10.10, 13.3.4, 13.4.3 and 15.2.2; FSS Code ch.3) (SOLAS 74/88 reg.II-2/17);

(PR) 5.2.2.78 checking the operational readiness and maintenance of fire-fighting systems (SOLAS 74/00 reg.II-2/14) (SOLAS 74/88/91 reg.II- 2/21);

(PR) 5.2.2.79 confirming, as far as practicable, that no changes have been made in the structural fire protection, including the structure, fire integrity, protection of stairways and lifts, cabin balconies, openings in "A" and "B" Class divisions, ventilation systems and windows and sidescuttles, and the use of combustible material (SOLAS 74/00/04/12/15/17 regs.II-2/5.2, 5.3, 6, 8.2, 8.5, 9.2.1, 9.2.2, 9.3, 9.4.1, 9.5, 9.6 (except 9.6.3), 9.7 and 11 (except 11.6)) (SOLAS 74/88 regs.II-2/11, 16, 18, 23 to 35 and 37);

(PR) 5.2.2.80 confirming, as far as practicable, that no changes have been made in the structural fire protection in cargo spaces intended for the carriage of dangerous goods (SOLAS 74/00 regs.II-2/19.3.8 and 19.3.10) (SOLAS 74/88 regs.II-2/4, 54.2.8, 54.2.10 and 54.2.11);

(PR) 5.2.2.81 examining and testing any manual and automatic fire doors including the means of closing the openings in "A" and "B" Class divisions (SOLAS 74/00/17 reg.II-2/9.4.1) (SOLAS 74/88 regs.II-2/30 and 31);

(PR) 5.2.2.82 examining and testing the fire dampers of ventilation ducts and the main inlets and outlets of all ventilation systems and checking that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/00/14 regs.II-2/5.2.1 and 9.7) (SOLAS 74/88 regs.II-2/16 and 32);

(PR) 5.2.2.83 confirming that the stairways and ladders, including the low-location lighting system, arranged to provide a means of escape to the lifeboat and liferaft embarkation deck from all passenger and crew spaces and from those spaces in which the crew is normally employed are being maintained (SOLAS 74/00/16 regs.II-2/13.2, 13.3.1, 13.3.2 and 13.7; FSS Code chs.11 and 13 (except paragraph 3)) (SOLAS 74/88 reg.II-2/28);

(PR) 5.2.2.84 confirming that the means of escape from any special category spaces and ro-ro spaces are satisfactory (SOLAS 74/00 regs.II-2/13.5 and 13.6) (SOLAS 74/88 reg.II-2/28);

(PR) 5.2.2.85 confirming that the means of escape from the machinery spaces are satisfactory (SOLAS 74/00/14 reg.II-2/13.4.1) (SOLAS 74/88 reg.II-2/28);

(PR) 5.2.2.86 examining the fire-extinguishing arrangements, examining and testing the fire detection and alarm systems and the sample extraction smoke detection systems, where applicable in cargo spaces for general cargo and dangerous goods and testing, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/00/14 regs.II-2/7.6, 10.7.1 and 10.7.2; FSS Code chs.5, 9 and 10) (SOLAS 74/88 reg.II-2/39);

(PR) 5.2.2.87 examining the fire-extinguishing arrangements, examining and testing the fire detection and alarm system and the sample extraction smoke detection system, where applicable, in vehicle, special category and ro-ro spaces, and testing, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/00/15/17 reg.II-2/20 (except 20.5); FSS Code chs.5, 6, 7, 9 and 10) (SOLAS 74/88 regs.II-2/37, 38 and 38-1);

(PR) 5.2.2.88 examining and testing, as appropriate and as far as practicable, the crew alarm and the public address system or other effective means of communication (SOLAS 74/00 regs.II-2/7.9 and 12; LSA Code ch.7) (SOLAS 74/88 reg.II-2/40);

(PR) 5.2.2.89 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, ventilation, the provision of personnel protection clothing and portable appliances, testing any fire detection and alarm system and any sample extraction smoke detection system and testing, as far as practicable, the water supply, bilge pumping and any water spray system (SOLAS 74/00/08 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4); FSS Code chs.3, 4, 7, 9

and 10) (SOLAS 74/88 regs.II-2/41 and 54);

(PR) 5.2.2.90 examining and testing, when appropriate, the helicopter facilities, including foam firefighting appliances, when appropriate (SOLAS 74/00/16 regs.II-2/18; FSS Code ch.17) (SOLAS 74/88 reg.II-2/18.8);

(PR) 5.2.2.91 checking the requirement for passenger ships carrying more than 36 passengers and constructed before 1 October 1994 (SOLAS 74/88/92 regs.II-2/41-1 and 41-2);

(PR) 5.2.2.92 for passenger ships constructed on or after 1 July 2010 and having a length of 120 m or more or having three or more main vertical zones, checking the designation of safe areas (SOLAS 74/06 reg.II-2/21);

(PR) 5.2.2.93 for passenger ships constructed on or after 1 July 2010, checking the provision of a safety centre (SOLAS 74/06 reg.II-2/23) and its associated ventilation system (SOLAS 74/06 reg.II-2/8.2);

(PR) 5.2.2.94 checking that emergency instructions are available for each person on board, the muster list is posted in conspicuous places and there are signs or posters in the vicinity of survival craft and their launching stations (SOLAS 74/96/17 regs.III/8, 9 and 37);

(PR) 5.2.2.95 checking that the falls used in launching have been periodically inspected and have been renewed in the past five years (SOLAS 74/96/04 reg.III/20);

(PR) 5.2.2.96 examining each survival craft, including its equipment and, when fitted, the on-load release mechanism and hydrostatic lock, and for inflatable liferafts the hydrostatic release unit and float free arrangements, including the date of servicing or replacement; checking that the hand-flares are not out of date and that the required number of search and rescue locating devices are fitted in liferafts and those liferafts are clearly marked (SOLAS 74/96/00/02/08 regs.III/20, 21, 23, 24 and 26; LSA Code sections 2.3 to 2.5, 3.2 and 4.1 to 4.6);

(PR) 5.2.2.97 checking that the life-saving appliances are of an international or vivid reddish orange, or a comparably highly visible colour on all parts where this will assist detection at sea (LSA Code section 1.2.2.6);

(PR) 5.2.2.98 examining the embarkation arrangements and launching appliances for each survival craft; each lifeboat should be lowered to the embarkation position or, if the stowage position is the embarkation position, lowered a short distance and, if practicable, one of the survival craft should be lowered to the water. The operation of the launching appliances for davit-launched liferafts should be demonstrated (SOLAS 74/96/04 regs.III/11, 12, 13, 15, 16, 20, 21 and 23; LSA Code sections 6.1 and 6.2);

(PR) 5.2.2.99 checking that a thorough examination of launching appliances, including the dynamic testing of the winch brake, and servicing of lifeboat and rescue boat on-load release gear, including fast recuse boat, and davit launched liferaft automatic release hooks, and that a thorough examination and operational test of lifeboat and rescue boat including fast rescue boat, have been carried out in accordance with the *Requirement for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear* (resolution MSC.402(96)) (SOLAS 74/00/12/16 reg.III/20.11);

(PR) 5.2.2.100 checking the rotational deployment of MES (SOLAS 74/88 reg.III/20.8.2; LSA Code section 6.2.2.2);

(PR) 5.2.2.101 examining each rescue boat, including its equipment; for inflatable rescue boats, confirming that they are stowed in a fully inflated condition (SOLAS 74/88/04 regs.III/14, 17, 21, 26.3 and 34);

(PR) 5.2.2.102 examining the embarkation and recovery arrangements for each rescue boat (SOLAS 74/88 reg.III/14);

(PR) 5.2.2.103 checking the arrangements for mustering passengers (SOLAS 74/96 regs.III/11, 24 and 25);

(PR) 5.2.2.104 confirming that a means of rescue is provided on ro-ro passenger ships (SOLAS 74/00 regs.III/11, 26.4);

(PR) 5.2.2.105 confirming that a helicopter pick-up area is provided on ro-ro passenger ships (SOLAS 74/00 reg.III/28);

(PR) 5.2.2.106 confirming that a decision support system is provided for the master (SOLAS 74/88 reg.III/29) (SOLAS 74/06 regs.II-2/21 and 22);

(PR) 5.2.2.107 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;

(PR) 5.2.2.108 examining and checking the operation of two-way VHF radiotelephone apparatus[1] and search and rescue locating devices (SOLAS 74/88/08 regs.III/6, IV/7 and 14);

(PR) 5.2.2.109 examining the line-throwing appliance and checking that its rockets and the ship's distress signals are not out of date (SOLAS 74/96 regs.III/6, 18 and 35; LSA Code sections 3.1 and 7.1);

(PR) 5.2.2.110 examining and checking the operation of onboard communications equipment and verifying that the general alarm system is audible in accommodation, normal crew working spaces and on open decks (SOLAS 74/96 regs.III/6, 18 and 35; LSA Code sections 3.1 and 7.1);

(PR) 5.2.2.111 examining the provision, disposition, stowage and condition of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets,[2] immersion suits, anti-exposure suits and thermal protective aids and that their associated batteries are not out of date (SOLAS 74/88/06 regs.III/7, 21, 22 and 26; LSA Code sections 2.1 to 2.5 and 3.1 to 3.3);

[1] Expired primary batteries, which complied with the requirements of paragraph 12.6 of *Revised recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.149 (77)), could be used for no other purpose than to examine and check the operation of two-way VHF radiotelephone apparatus.

[2] SOLAS regulations III/7.2.1.1, 7.2.1.2 and 7.2.1.5 should be considered.

(PR) 5.2.2.111.1 checking the provision of lifejackets in three sizes (Infant, Child, Adult) and checking that they are marked by either weight or height, or by both weight and height (LSA Code section 2.2.1.1); for passenger ships on voyages less than 24 h, checking that the number of infant lifejackets is equal to at least 2.5% of the number of passengers on board and for passenger ships on voyages 24 h or greater, checking that infant lifejackets are provided for each infant on board (SOLAS 74/06 reg.III/7.2.1);

(PR) 5.2.2.111.2 checking that immersion suits designed to be worn in conjunction with a lifejacket are suitably marked (LSA Code section 2.3.1);

(PR) 5.2.2.112 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 regs.II-1/42 and III/11);

(PR) 5.2.2.113 checking that the required navigation lights, shapes and sound signalling equipment are in order (COLREG, rules 20 to 24, 27 to 30 and 33);

(PR) 5.2.2.114 checking the provision and specification of the following navigation equipment as appropriate: daylight signalling lamp, magnetic compass, transmitting heading device, gyro compass, gyro compass repeaters, radar installation(s), electronic plotting aid, automatic tracking aid(s) or automatic radar plotting aid(s), echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate-of-revolution indicator, variable pitch propeller pitch and operational mode indicator, rate-of-turn indicator, heading or track control system, GNSS receiver, terrestrial radio navigation system and sound reception system, a pelorus or compass bearing device, means for correcting heading and bearings, a BNWAS, as applicable, and ECDIS including backup arrangements, as applicable; items that cannot be checked with the ship in port should be verified from records (SOLAS 74/00/09/13 reg.V/19);

(PR) 5.2.2.115 checking for the provision, specification operation and annual performance test of the voyage data recorder (SOLAS 74/00/04 reg.V/20);

(PR) 5.2.2.116 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided (SOLAS 74/00/02reg.V/21);

PR) 5.2.2.117 checking that a valid conformance test report of the long-range identification and tracking system is available on board, where fitted (SOLAS 74/04 reg.V/19-1);

(PR) 5.2.2.118 checking the provision and operation of the automatic identification system, where fitted, and whether the annual test has been carried out and a copy of the test report is on board (SOLAS 74/00/04/10 regs.V/18.9 and 19);

(PR) 5.2.2.119 checking the provision and specification of the pilot ladders and pilot transfer arrangements (SOLAS 74/00/10 reg.V/23);

(PR) 5.2.2.120 checking the provisions of (PI) 5.1.3.118 to (PI) 5.1.3.143 and (PI) 5.1.3.145 to (PI) 5.1.3.147;

(PR) 5.2.2.121 confirming that no new materials containing asbestos were installed on board (SOLAS 74/00/05/09 reg.II-1/3-5);[1]

(PR) 5.2.2.122 checking that the means of embarkation and disembarkation from ships for use in port and in port-related operations, such as gangways and accommodation ladders, are in satisfactory condition, as applicable (SOLAS 74/08 reg.II-1/3-9); and

(PR) 5.2.2.123 confirming, where applicable, that an appropriate portable atmosphere testing instrument or instruments[2] is on board, and that suitable means are provided for the calibration of all such instruments;[3] and checking the appropriateness of the testing and calibration (SOLAS 74/14 reg.XI-1/7).

(PR) 5.2.3 For the hull, machinery and equipment of passenger ships using natural gas as fuel the additional requirements for the renewal survey should consist of:

(PR) 5.2.3.1 examining the logbooks and operating records with regard to correct functioning of the gas detection systems, fuel supply/gas systems, etc. (IGF Code ch.16);

(PR) 5.2.3.2 confirming the manufacturer/builder instructions and manuals covering the operations, safety and maintenance requirements and occupational health hazards relevant to fuel storage, fuel bunkering, and fuel supply and associated systems for the use of the fuel, are provided on board the vessel (IGF Code chs.6 and 18);

(PR) 5.2.3.3 confirming gas detection and other leakage detection equipment in compartments containing fuel storage, fuel bunkering, and fuel supply equipment or components or associated systems, including indicators and alarms, is in satisfactory operating condition (IGF Code chs.6 and 15);

(PR) 5.2.3.4 confirming the satisfactory operation of the control, monitoring and automatic shutdown systems of the fuel supply and bunkering systems (IGF Code ch.15);

(PR) 5.2.3.5 confirming the availability of test and calibration records of the gas detection systems (IGF Code ch.15);

(PR) 5.2.3.6 examining piping, hoses, emergency shutdown valves, remote operating valves, relief valves, means for inerting, machinery and equipment for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating, cooling or otherwise handling the fuel (IGF Code chs.5, 6, 8, 9, 10 and 15);

(PR) 5.2.3.7 testing the shutdown of ESD protected machinery spaces operationally, as far as practicable (IGF Code ch.5);

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[1] Refer to the *Unified interpretation of SOLAS regulation II-1/3-5*(MSC.1/Circ.1379 and MSC.1/Circ.1426/Rev.1).

[2] Refer to the *Guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces as required by SOLAS regulation XI-1/7* (MSC.1/Circ.1477).

[3] Refer to the *Unified interpretations of SOLAS regulation XIV/2.2 and paragraphs 1.3.2 and 1.3.6, part I-A of the Polar Code* (MSC.1/Circ.1562).

(PR) 5.2.3.8 confirming stopping of pumps and compressors upon emergency shutdown of the system (IGF Code chs.6, 10 and 15);

(PR) 5.2.3.9 examining the ventilation system, including portable ventilating equipment where fitted, for spaces containing fuel storage, fuel bunkering, and fuel supply units or components or associated systems; and including air locks, pump-rooms, compressor rooms, fuel preparation rooms, fuel valve rooms, control rooms and spaces containing gas burning equipment (IGF Code chs.12 and 13);

(PR) 5.2.3.10 testing, as far as practicable, alarms, such as differential pressure and loss of pressure alarms (IGF Code ch.15);

(PR) 5.2.3.11 examining portable and fixed drip trays and insulation (IGF Code ch.5);

(PR) 5.2.3.12 examining electrical equipment including electrical bonding arrangements and bulkhead/deck penetrations including access openings in hazardous areas (IGF Code chs 5, 12 and 14);

(PR) 5.2.3.13 examining the condition and arrangement of fuel storage, bunkering and supply systems, including external examination of storage tank and secondary barrier if fitted and relief valves if accessible, verifying the satisfactory operation of the tank monitoring system, and examining and testing installed bilge alarms and means of drainage (IGF Code chs.6, 8, and 15);

(PR) 5.2.3.14 testing of the remote and local closing of the installed main tank valve (IGF Code chs.6 and 10);

(PR) 5.2.3.15 examining bunkering stations and the fuel bunkering system including operation of the fuel bunkering control, monitoring and shutdown systems (IGF Code ch.8);

(PR) 5.2.3.16 examining the Ship-shore link (SSL) or equivalent means for automatic and manual ESD communication to the bunkering source (IGF Code para.8.5.7);

(PR) 5.2.3.17 examining the fuel supply system including the fuel supply system control, monitoring and shutdown systems (IGF Code chs.9 and 15);

(PR) 5.2.3.18 testing of the remote and local closing of the master fuel valve for each engine compartment (IGF Code chs.5, 9 and 15);

(PR) 5.2.3.19 testing gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system including proper response of the fuel safety system upon fault conditions (IGF Code ch.15);

(PR) 5.2.3.20 examining the storage tanks and all associated piping for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating, storing, burning or otherwise handling the fuel and liquid nitrogen installations, and requiring removal of insulation from the piping and opening for examination and hydrostatic test of suspected pipeline as necessary, and leak test of complete piping after reassembly (IGF Code chs.5, 6, 7, 8, 9 and 10);

(PR) 5.2.3.21 examining emergency shutdown valves, check valves, block and bleed valves, master gas valves, remote operating valves, isolating valves for pressure relief valves in the fuel storage, fuel bunkering, and fuel supply piping systems, with randomly selected valves being opened for examination (IGF Code chs.5, 6, 7, 9, 15 and 16);

(PR) 5.2.3.22 examining pressure relief valves connected to fuel storage tanks and connected pipes and venting system, with PRV being opened for examination, adjusted and function tested (IGF Code ch.6);

(PR) 5.2.3.23 examining and testing pressure relief valves in fuel supply/bunker lines, including valves being opened for internal examination and testing; the number of valves being opened up for internal examination and being tested should include all PRVs that were not internally examined and tested in the past 5 years and a random selection of PRVs that were internally examined and tested in the past 5 years provided satisfactory records of overhaul and testing of these PRVs are available (IGF Code ch.6);

(PR) 5.2.3.24 examining pressure/vacuum relief valves or devices for interbarrier spaces and hold spaces, with the valves being opened, examined, tested and readjusted as necessary (IGF Code ch.6);

(PR) 5.2.3.25 examining fuel storage tanks internally in accordance with an approved survey plan (IGF Code ch.6);

(PR) 5.2.3.26 examining and testing of spill protection and water spray systems, for portable liquefied gas fuel tanks located on open deck (IGF Code para.6.5.2);

(PR) 5.2.3.27 examining and testing the thermal oxidation system if any (IGF Code para.6.9.4);

(PR) 5.2.3.28 examining and NDE testing the low temperature steel shielding at the bunker station if any (IGF Code para.8.3.1.6);

(PR) 5.2.3.29 examining fuel pumps, compressors, process pressure vessels, inert gas generators, heat exchangers and other components used in connection with fuel handling (IGF Code chs.5, 6, 8, 9, 10 and 15);

(PR) 5.2.3.30 examining electrical equipment including the physical condition of electrical cables and supports, intrinsically safe, explosion proof, or increased safety features of electrical equipment, including functional tests of pressurized electrical equipment and associated alarms, testing of electrical equipment for de-energization which is not certified for use in hazardous areas and insulation resistance test of circuits passing through hazardous zone (IGF Code chs.12 and 14);

(PR) 5.2.3.31 examining and testing gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system, including verification of the response upon fault conditions, and the calibrations of pressure, temperature and level indicating equipment in accordance with the manufacturer's requirements (IGF Code ch.15);[1]

[1] Where applicable, refer to the *Unified interpretations of the IGF Code* (MSC.1/Circ.1591).

(PR) 5.2.3.32 examining the arrangements for the fire protection and fire extinction (IGF Code ch.11);

(PR) 5.2.3.33 examining the fire pump capacity and working pressure in relation to the water spray system, if the water spray system is part of the fire main system (IGF Code para.11.4.1);

(PR) 5.2.3.34 examining the isolating valves of the fire main, when the fuel storage tank or tanks are located on the open deck (IGF Code para.11.4.2);

(PR) 5.2.3.35 examining the water spray system arrangement for fuel storage tanks(s) on open deck including remote operation (IGF Code section 11.5);

(PR) 5.2.3.36 examining the fixed dry chemical powder fire-extinguishing system for the bunkering station area (IGF Code para.11.6.1);

(PR) 5.2.3.37 examining the portable dry powder extinguisher (IGF Code para.11.6.2);

(PR) 5.2.3.38 examining the fixed fire detection and alarm system (IGF Code sections 11.7, 15.9);

(PR) 5.2.3.39 checking the records about drills and emergency exercises (IGF Code ch.17); and

(PR) 5.2.3.40 checking the pre-bunkering verification records according to the bunker safety checklist (IGF Code ch.18).

(PR) 5.2.4 For the hull, machinery and equipment of passenger ships the completion of the renewal survey should consist of:

(PR) 5.2.4.1 after a satisfactory survey, issuing the Passenger Ship Safety Certificate and its associated Record of Equipment (Form P).

Annex 2

SURVEY GUIDELINES UNDER THE 1966 LL CONVENTION, AS MODIFIED BY THE 1988 PROTOCOL RELATING THERETO

(L) **1** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL LOAD LINE CERTIFICATE OR INTERNATIONAL LOAD LINE EXEMPTION CERTIFICATE**

(LI) **1.1** **Initial surveys** – see part "General" section 4.1

(LI) 1.1.1 For the load line the examination of plans and designs should consist of:

(LI) 1.1.1.1 examining the structural strength at the draught corresponding to the assigned freeboard (LLC 66/88 reg.1);

(LI) 1.1.1.2 examining the intact stability, and, where applicable, the damaged stability information and the loading and ballasting information that is to be supplied to the master, and, where not dispensed by the Administration, inclining experimental data (LLC 66/88/08 regs.1 and 10; IS Code chs.1, 2 and 3); and

(LI) 1.1.1.3 determining the freeboard, including specifying and considering the conditions of assignment for the freeboard (LLC 66/88/03 regs.11 to 45).

(LI) 1.1.2 For the load line the survey during construction and after installation should consist of:

(LI) 1.1.2.1 checking that, as far as its strength is concerned, the ship has been constructed in accordance with the approved plans (LLC 66/88 reg.1);

(LI) 1.1.2.2 confirming that the deck line and load line mark are properly positioned (LLC 66/88 regs.4 to 9);

(LI) 1.1.2.3 witnessing the inclining experiment or lightweight survey (LLC 66/88/03 reg.10);

(LI) 1.1.2.4 examining the superstructure end bulkheads and the openings therein (LLC 66/88 regs.11 and 12);

(LI) 1.1.2.5 examining the means of securing the weathertightness of cargo hatchways, other hatchways and other openings on the freeboard and superstructure decks (LLC 66/88 regs.13 to 18);

(LI) 1.1.2.6 examining the ventilators and air pipes, including their coamings and closing appliances (LLC 66/88 regs.19 and 20);

(LI) 1.1.2.7 examining the watertight integrity of the closures to any openings in the ship's side below the freeboard deck (LLC 66/88 reg.21);

(LI) 1.1.2.8 examining the scuppers, inlets and discharges (LLC 66/88/03 reg.22);

(LI) 1.1.2.9 examining the garbage chutes (LLC 66/88/03 reg.22-1);

(LI) 1.1.2.10 examining the spurling pipes and cable lockers (LLC 66/88/03 reg.22-2);

(LI) 1.1.2.11 examining the sidescuttles and deadlights (LLC 66/88 reg.23);

(LI) 1.1.2.12 examining the bulwarks including the provision of freeing ports, special attention being given to any freeing ports fitted with shutters (LLC 66/88/03 regs.24 and 25);

(LI) 1.1.2.13 examining the guardrails, gangways, walkways and other means provided for the protection of the crew and means for safe passage of the crew (LLC 66/88/03 regs.25 and 25-1);

(LI) 1.1.2.14 examining the special requirements for ships permitted to sail with type "A" or type "B-minus" freeboards (LLC 66/88/03 regs.26 and 27); and

(LI) 1.1.2.15 checking, when applicable, the fittings and appliances for timber deck cargoes (LLC 66/88 regs.42 to 45).

(LI) 1.1.3 For the load line the check that certificates, etc., have been placed on board should consist of:

(LI) 1.1.3.1 checking that the loading and ballasting information has been supplied to the master (LLC 66/88 reg.10).

(LI) 1.1.4 For the load line the completion of the initial survey should consist of:

(LI) 1.1.4.1 after a satisfactory survey, issuing the International Load Line Certificate or International Load Line Exemption Certificate.

(LA) **1.2** **Annual surveys** – see part "General", section 4.2

(LA) 1.2.1 For the load line the examination of current certificates and other records should consist of:

(LA) 1.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(LA) 1.2.1.2 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(LA) 1.2.1.3 checking the validity of the International Ship Security Certificate;

(LA) 1.2.1.4 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(LA) 1.2.1.5 checking the validity of the International Oil Pollution Prevention Certificate;

(LA) 1.2.1.6 checking the certificate of class, if the ship is classed with a classification society;

(LA) 1.2.1.7 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(LA) 1.2.1.8 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(LA) 1.2.1.9 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(LA) 1.2.1.10 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(LA) 1.2.1.11 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(LA) 1.2.1.12 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI regs.6.4 and 6.5);

(LA) 1.2.1.13 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(LA) 1.2.1.14 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(LA) 1.2.1.15 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(LA) 1.2.1.16 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(LA) 1.2.1.17 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(LA) 1.2.1.18 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(LA) 1.2.1.19 checking that the stability and, where applicable, the loading and ballasting information is available (LLC 66/88/08 regs.1 and 10; IS Code chs.1, 2 and 3); and

(LA) 1.2.1.20 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(LA) 1.2.2 For the load line the annual survey should consist of:

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(LA) 1.2.2.1 checking, in general, that there has been no deterioration in the strength of the hull (LLC 66/88 reg.1);

(LA) 1.2.2.2 checking the positions of the deck line and load line which, if necessary, are to be re-marked and re-painted (LLC 66/88 regs.4 to 9);

(LA) 1.2.2.3 checking that no alterations have been made to the hull or superstructures that would affect the calculations determining the position of the load lines (LLC 66/88 regs.11 to 45);

(LA) 1.2.2.4 examining the superstructure end bulkheads and the openings therein (LLC 66/88 regs.11 and 12);

(LA) 1.2.2.5 examining the means of securing the weathertightness of cargo hatchways, other hatchways and other openings on the freeboard and superstructure decks (LLC 66/88 regs.13 to 18);

(LA) 1.2.2.6 examining the ventilators and air pipes, including their coamings and closing appliances (LLC 66/88 regs.19 and 20);

(LA) 1.2.2.7 examining the watertight integrity of the closures to any openings in the ship's side below the freeboard deck (LLC 66/88 reg.21);

(LA) 1.2.2.8 examining the scuppers, inlets and discharges (LLC 66/88 reg.22);

(LA) 1.2.2.9 examining the garbage chutes (LLC 66/88/03 reg.22-1);

(LA) 1.2.2.10 examining the means provided to minimize water ingress through the spurling pipes and chain lockers (LLC 66/88/03 reg.22-2);

(LA) 1.2.2.11 examining the sidescuttles and deadlights (LLC 66/88 reg.23);

(LA) 1.2.2.12 examining the bulwarks including the provision of freeing ports, special attention being given to any freeing ports fitted with shutters (LLC 66/88/03 regs.24 and 25);

(LA) 1.2.2.13 examining the guardrails, gangways, walkways and other means provided for the protection of the crew and means for safe passage of the crew (LLC 66/88/03 regs.25 and 25-1);

(LA) 1.2.2.14 examining the special requirements for ships permitted to sail with type "A" or type "B-minus" freeboards (LLC 66/88/03 regs.26 and 27); and

(LA) 1.2.2.15 checking, when applicable, the fittings and appliances for timber deck cargoes (LLC 66/88 regs.42 to 45).

(LA) 1.2.3 For the load line the completion of the annual survey should consist of:

(LA) 1.2.3.1 after a satisfactory survey, endorsement of the International Load Line Certificate or International Load Line Exemption Certificate; and

(LA) 1.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(LR) **1.3** **Renewal surveys** – see part "General", section 4.5

(LR) 1.3.1 For the load line the examination of current certificates and other records should consist of:

(LR) 1.3.1.1 the provisions of (LA) 1.2.1, except for the validity of the International Load Line Certificate or International Load Line Exemption Certificate.

(LR) 1.3.2 For the load line the renewal survey should consist of:

(LR) 1.3.2.1 the provisions of (LA) 1.2.2;

(LR) 1.3.2.2 examining the hull to ensure that its strength is sufficient for the draught corresponding to the freeboard assigned (LLC 66/88 reg.1).

(LR) 1.3.3 For the load line the completion of the renewal survey should consist of:

(LR) 1.3.3.1 after a satisfactory survey, issuing the International Load Line Certificate or International Load Line Exemption Certificate.

Annex 3

SURVEY GUIDELINES UNDER THE MARPOL CONVENTION

(O) **1** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL OIL POLLUTION PREVENTION CERTIFICATE**

(OI) **1.1** **Initial surveys** – see part "General", section 4.1

(OI) 1.1.1 For oil pollution prevention the examination of plans and designs should consist of:

(OI) 1.1.1.1 examining the arrangements for the control of the discharge of oil and examining the plans and designs of the oil discharge monitoring and control system and oily-water separating and oil filtering equipment; confirming that pollution prevention equipment is type-approved in accordance with the relevant resolution (MARPOL 90/04/15 Annex I regs.14 & 15);

(OI) 1.1.1.2 examining the arrangements for operation in special areas (MARPOL 90/04/15 Annex I reg.15);

(OI) 1.1.1.3 examining the arrangements for the segregation of oil and water ballast and the prohibition of carriage of oil in the forepeak tanks or in spaces forward of the collision bulkhead (MARPOL 90/04 Annex I reg.16);

(OI) 1.1.1.4 examining the oil residue (sludge) tank and standard discharge arrangements (MARPOL 90/04/15 Annex I regs.12 and 13, and where applicable, Polar Code part II-A/para.1.2.4);

(OI) 1.1.1.5 examining oil fuel tank protection arrangements (MARPOL 90/04 Annex I reg.12A, and where applicable, Polar Code part II-A/para.1.2.1);

(OI) 1.1.1.6 confirming that requirements regarding capacity and protection of oil fuel tanks are complied with (MARPOL 90/04 Annex I reg.12A, and where applicable, Polar Code part II-A/para.1.2.1); and

(OI) 1.1.1.7 examining the shipboard oil pollution emergency plan or in the case of a chemical/product tanker the shipboard marine pollution emergency plan (MARPOL 90/04 Annex I reg.37, and where applicable, Polar Code part II-A/para.1.1.4).

(OI) 1.1.2 For oil pollution prevention, concerning the additional requirements for oil tankers the examination of plans and designs should consist of:

(OI) 1.1.2.1 examining the ODME Manual and the arrangements for the control of the discharge of oil and for the retention of oil on board; verifying that the ODME is type-approved in accordance with the relevant resolution (MARPOL 90/04/15 Annex I regs.29, 31 and 34);

(OI) 1.1.2.2 examining the arrangements for operation in special areas (MARPOL 90/04/15 Annex I reg.34);

(OI) 1.1.2.3 examining the arrangements for the segregated ballast tanks, checking their capacity and ascertaining whether the draught and trim conditions will be met (MARPOL 90/04 Annex I reg.18);

(OI) 1.1.2.4 examining the arrangements for crude oil washing, including shadow diagrams and the Operations and Equipment Manual, checking that an inert gas system is to be fitted (MARPOL 90/04 Annex I regs.33 and 35);

(OI) 1.1.2.5 examining, as appropriate, the arrangements for the prevention of oil pollution in the event of collision or stranding (MARPOL 90/04/14 Annex I regs.19 to 22, and where applicable, Polar Code part II A/paras.1.2.2 and 1.2.3);

(OI) 1.1.2.6 examining the protective location of the segregated ballast spaces and the arrangements for minimizing pollution due to side and bottom damages (MARPOL 90/04 Annex I regs.18, and 24 to 26);

(OI) 1.1.2.7 confirming, as appropriate, that arrangements are made for the maintenance and inspection of wing and double bottom tanks or spaces (MARPOL 90/04/14 Annex I reg.19);

(OI) 1.1.2.8 examining the arrangements for cargo pump-room bottom protection (double bottom where required) (MARPOL 90/04 Annex I reg.22);

(OI) 1.1.2.9 examining the pumping, piping and discharge arrangements (MARPOL 90/04 Annex I reg.30);

(OI) 1.1.2.10 examining the arrangements of the oil/water interface detector (MARPOL 90/04 Annex I reg.32);

(OI) 1.1.2.11 examining, for oil tankers of 5,000 tonnes deadweight and above delivered on or after 1 February 2002, the intact stability (MARPOL 90/04 Annex I, reg.27);

(OI) 1.1.2.12 examining, for oil tankers of 150 gross tonnage and above delivered after 31 December 1979, the subdivision and damage stability (MARPOL 90/04 Annex I reg.28);

(OI) 1.1.2.13 examining the accidental oil outflow performance, as applicable (MARPOL 90/04 Annex I reg.23);

(OI) 1.1.2.14 examining, where applicable, the stability instrument (MARPOL 90/04/14 Annex I reg.28); and

(OI) 1.1.2.15 examining, when carriage of a stability instrument is waived, the alternative means of verification for intact and damage stability (MARPOL 90/04/14 Annex I reg.3).

(OI) 1.1.3 For oil pollution prevention the survey during construction and after installation should consist of:

(OI) 1.1.3.1 confirming the satisfactory installation and operation of, as appropriate, oil filtering equipment and when appropriate the operation of the automatic means provided to stop the discharge of effluent and the satisfactory operation of the alarm – or other installation (MARPOL 90/04/15 Annex I regs.14 and 15);

(OI) 1.1.3.2 confirming, when applicable, that the oil content meter and its recording device are operable and that there is a sufficient supply of consumables for the recording device on board (MARPOL 90/04/15 Annex I regs.14 and 15);

(OI) 1.1.3.3 testing, where fitted, the automatic stopping device required for discharges in Special Areas (MARPOL 90/04/15 Annex I reg.15);

(OI) 1.1.3.4 confirming the segregation of the oil fuel and water ballast system and the non-carriage of oil in forepeak tanks (MARPOL 90/04 Annex I reg.16);

(OI) 1.1.3.5 confirming that the oil residue (sludge) tank and its discharge arrangements are satisfactory and, when the size of the sludge tank is approved on the basis of such installations, confirming the satisfactory operation of homogenizers, sludge incinerators or other recognized means for the control of sludge (MARPOL 90/04/15 Annex I reg.12, and where applicable, Polar Code part II-A/para.1.2.4);

(OI) 1.1.3.6 confirming the provision of the standard discharge connection (MARPOL 90/04 Annex I reg.13); and

(OI) 1.1.3.7 confirming oil fuel tank protection arrangements (MARPOL 90/04 Annex I reg.12A, and where applicable, Polar Code part II-A/para.1.2.1).

(OI) 1.1.4 For oil pollution prevention, concerning the additional requirements for oil tankers the survey during construction and after installation should consist of:

(OI) 1.1.4.1 confirming that the arrangements of slop tanks or cargo tanks designated as slop tanks, and associated piping systems, are satisfactory (MARPOL 90/04/15 Annex I regs.29 and 34);

(OI) 1.1.4.2 confirming the satisfactory installation and operation of the oil discharge monitoring and control system, including any audible or visual alarms, the automatic and manual means to stop the discharge of effluent, the starting interlock, the accuracy of the flow meter and the applicable resolution's requirements for installation survey[1] (MARPOL 90/04/15 Annex I regs.31 and 34);

(OI) 1.1.4.3 confirming that the oil content meter and its recording device are operable and that there is a sufficient supply of consumables for the recording device on board (MARPOL 90/04/15 Annex I regs.31 and 34);

(OI) 1.1.4.4 confirming that the approved oil/water interface detectors are on board and are operational (MARPOL 90/04 Annex I reg.32);

(OI) 1.1.4.5 confirming that the arrangements of pumps, pipes and valves are in accordance with the requirements for segregated ballast systems and that there are no cross-connections between the cargo and segregated ballast systems (MARPOL 90/04 Annex I reg.18);

*

[1] Refer to the *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (Resolution A.586(14)), as amended, or the *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (resolution MEPC.108(49)), as amended, as applicable.

(OI) 1.1.4.6 where a portable spool piece is provided for the emergency discharge of segregated ballast by connecting the segregated ballast system to a cargo pump, confirming that non-return valves are fitted on the segregated ballast connections and that the spool piece is mounted in a conspicuous position in the pump-room with a permanent notice restricting its use (MARPOL 90/04 Annex I reg.18);

(OI) 1.1.4.7 testing ballast pipelines that pass through cargo tanks and those cargo pipelines that pass through ballast tanks to ensure there is no cross contamination (MARPOL 90/04 Annex I reg.18);

(OI) 1.1.4.8 confirming that the crude oil washing system is installed in accordance with the approved plans (MARPOL 90/04 Annex I regs.18 and 33) and, in particular:

(OI) 1.1.4.8.1 examining crude oil washing piping, pumps, valves and deck-mounted washing machines for signs of leakage and to check that all anchoring devices for crude oil washing piping are intact and secure;

(OI) 1.1.4.8.2 carrying out pressure testing of the crude oil washing system to 1.5 times the working pressure;

(OI) 1.1.4.8.3 confirming in those cases where drive units are not integral with the tank washing machines that the number of operational drive units specified in the Manual are on board;

(OI) 1.1.4.8.4 checking that, when fitted, steam heaters for water washing can be properly isolated during crude oil washing operations, either by double shut-off valves or by clearly identifiable blanks;

(OI) 1.1.4.8.5 checking that the prescribed means of communication between the deck watchkeeper and the cargo control position is operational;

(OI) 1.1.4.8.6 confirming that an overpressure relief device (or other approved arrangement) is fitted to the pumps supplying the crude oil washing system;

(OI) 1.1.4.8.7 verifying that flexible hoses for the supply of oil to the washing machines on combination carriers are of an approved type, are properly stored and are in good condition;

(OI) 1.1.4.9 verifying the effectiveness of the crude oil washing system (MARPOL 90/04 Annex I reg.33) and, in particular:

(OI) 1.1.4.9.1 checking that the crude oil washing machines are operable and observing the proper operation of the washing machines by means of the movement indicators and/or sound patterns or other approved methods;

(OI) 1.1.4.9.2 checking the effectiveness of the stripping system in appropriate cargo tanks by observing the monitoring equipment and by hand-dipping or other approved means;

(OI) 1.1.4.9.3 verifying by internal tank inspection after crude oil washing that the installation and operational procedures laid down in the Operations and Equipment Manual are satisfactory;

(OI) 1.1.4.10 confirming that, where there is a crude oil washing system, an inert gas system has been installed and tested in accordance with the requirements of SOLAS 74/88/2000 (see (El) 1.1.5.2 in Annex 1);

(OI) 1.1.4.11 confirming, as appropriate, that the arrangements for the prevention of oil pollution in the event of collision or stranding are in accordance with the approved plans (MARPOL 90/04/14 Annex I regs.19 to 22, Polar Code part II-A/paras.1.2.2 and 1.2.3);

(OI) 1.1.4.12 confirming that the piping systems associated with the discharge of dirty ballast water or oil-contaminated water are satisfactory (MARPOL 90/04 Annex I reg.30);

(OI) 1.1.4.13 confirming that the observation and discharge control positions for visually observing the discharge of oil-contaminated water, including the testing of the communication system between the two positions, are satisfactory (MARPOL 90/04 Annex I reg.30);

(OI) 1.1.4.14 confirming that the means of draining cargo pumps and cargo lines, including the provision of a stripping device and the connections for pumping to the slop or cargo tanks or ashore, are satisfactory (MARPOL 90/04 Annex I reg.30);

(OI) 1.1.4.15 confirming that closing devices installed in the cargo transfer system and cargo piping, as appropriate, are satisfactory (MARPOL 90/04 Annex I regs.23 and 26);

(OI) 1.1.4.16 confirming that the subdivision and stability arrangements, in addition to the provision of (OI) 1.1.4.15, to prevent progressive flooding are satisfactory (MARPOL 90/04 Annex I regs.23 and 26); and

(OI) 1.1.4.17 confirming the arrangements for cargo pump-room bottom protection (double bottom where required) (MARPOL 90/04 Annex I reg.22).

(OI) 1.1.5 For oil pollution prevention the check that the documentation has been placed on board cargo ships should consist of:

(OI) 1.1.5.1 confirming that certificates for type approval for the oil filtering equipment and oil content meters are available (MARPOL 90/04/15 Annex I reg.14);

(OI) 1.1.5.2 confirming that the Oil Record Book or as an electronic record book[1](Part I) has been provided (MARPOL 90/04/19 Annex I reg.17);

(OI) 1.1.5.3 confirming that the shipboard oil pollution emergency plan or, in the case of a chemical/product tanker, a shipboard marine pollution emergency plan has been provided (MARPOL 90/04 Annex I reg.37, and where applicable, Polar Code part II-A/section 1.1); and

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(OI) 1.1.5.4 confirming, as appropriate, that the Operating and Maintenance Manuals for the 15 ppm bilge separator and 15 ppm bilge alarm are available.

(OI) 1.1.6 For the oil pollution prevention the check that the documentation has been placed on board oil tankers should additionally consist of:

(OI) 1.1.6.1 confirming that, if applicable, a ship-to-ship (STS) operations plan approved by the Administration has been provided (MARPOL Annex I reg.41);

(OI) 1.1.6.2 confirming that, if applicable, a Crude Oil Washing Operations and Equipment Manual has been provided (MARPOL 90/04 Annex I reg.35);

(OI) 1.1.6.3 confirming that an operations manual for the oil discharge monitoring and control system has been provided together with any other documentation requested by the applicable resolution[1] (MARPOL 90/04 Annex I reg.31);

(OI) 1.1.6.4 confirming that certificates for type approval for the oil content meters, oil discharge monitoring and control system and oil/water interface detectors are available (MARPOL 90/04 Annex I regs.31 and 32);

(OI) 1.1.6.5 confirming that the Oil Record Book or as an electronic record book[2](Part II) has been provided (MARPOL 90/04 Annex I reg.36);

(OI) 1.1.6.6 confirming that the information and data concerning the subdivision and damage stability has been provided (MARPOL 90/04 Annex I reg.28);

(OI) 1.1.6.7 confirming that the shipboard oil pollution emergency plan or in the case of a chemical/product tanker a shipboard marine pollution emergency plan has been provided (MARPOL 90/04 Annex I reg.37, and where applicable, Polar Code part II-A/section 1.1);

(OI) 1.1.6.8 confirming, for oil tankers of 5,000 tonnes deadweight and above delivered on/after 1 February 2002, that the intact stability has been approved (MARPOL 90/04 Annex I reg.27);

(OI) 1.1.6.9 confirming, for oil tankers of 5,000 tonnes deadweight and above, that arrangements are in place to provide prompt access to shore-based damage stability and residual structural strength computerized calculation programs (MARPOL 90/04 Annex I reg.37.4);

(OI) 1.1.6.10 confirming, where applicable, the stability instrument has been approved and is operating satisfactorily (MARPOL 90/04/14 Annex I reg.28); and

(OI) 1.1.6.11 confirming, when carriage of a stability instrument is waived, the alternative means of verification for intact and damage stability is recorded on Form B attached to the IOPP Certificate and is being applied effectively (MARPOL 90/04/14 Annex I reg.3).

[1] Refer to *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (resolution A.586(14)), as amended, or the *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (resolution MEPC.108(49)), as amended, as applicable

[2] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(OI) 1.1.7 For oil pollution prevention the completion of the initial survey should consist of:

(OI) 1.1.7.1 after a satisfactory survey, issuing the International Oil Pollution Prevention Certificate.

(OA) **1.2** **Annual surveys** – see part "General", section 4.2

(OA) 1.2.1 For oil pollution prevention the examination of current certificates and other records should consist of:

(OA) 1.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(OA) 1.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(OA) 1.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;

(OA) 1.2.1.4 checking the certificates of class, if the ship is classed with a classification society;

(OA) 1.2.1.5 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(OA) 1.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(OA) 1.2.1.7 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(OA) 1.2.1.8 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(OA) 1.2.1.9 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(OA) 1.2.1.10 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(OA) 1.2.1.11 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(OA) 1.2.1.12 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(OA) 1.2.1.13 checking, when appropriate, the validity of the International Ballast Water Management Certificate*;*

(OA) 1.2.1.14 checking, when appropriate, the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(OA) 1.2.1.15 checking the validity of the International Ship Security Certificate;

(OA) 1.2.1.16 checking, as appropriate, the validity of the Polar Ship Certificate;

(OA) 1.2.1.17 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(OA) 1.2.1.18 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(OA) 1.2.1.19 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(OA) 1.2.1.20 checking the certificates for the type approval of the oil filtering equipment (MARPOL 90/04/15 Annex I regs.14 and 15);

(OA) 1.2.1.21 checking, when appropriate, that the Operating and Maintenance Manuals for the 15 ppm bilge separator and 15 ppm bilge alarm are available on board;

(OA) 1.2.1.22 verifying, if applicable, that the 15 ppm bilge alarm has been calibrated by the manufacturer or a person authorized by the manufacturer and that a valid calibration certificate is available on board;[1]

(OA) 1.2.1.23 checking whether the appropriate entries have been made in Part I of the Oil Record Book or as an electronic record book[2] (MARPOL 90/04/19 Annex I reg.17, and where applicable, Polar Code part II-A/section 1.1);

(OA) 1.2.1.24 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable; and

(OA) 1.2.1.25 confirming that the oil pollution emergency plan or, in the case of a chemical/product tanker, a shipboard marine pollution emergency plan, is on board (MARPOL 90/04 Annex I reg.37, and where applicable, Polar Code part II-A/section 1.1).

(OA) 1.2.2 For oil pollution prevention the examination of current certificates and other records for oil tankers should additionally consist of:

(OA) 1.2.2.1 confirming that the approved Dedicated Clean Ballast Tank Operation Manual, and/or the approved Operations and Equipment Manual for the Crude Oil Washing Systems, as appropriate, is/are on board

[1] Applicable for installations complying with the *Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships* (resolution MEPC.107(49)), as amended

[2] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(MARPOL 90/04 Annex I regs.18 and 35);

(OA) 1.2.2.2 confirming, when appropriate, that a CAS Statement of Compliance together with the CAS Final Report[1] are on board (MARPOL 90/04/14 Annex I, regs.20.6, 20.7 and 21.6);

(OA) 1.2.2.3 confirming that the operating and maintenance manual for the oil discharge monitoring and control system is on board (MARPOL 90/04 Annex I reg.31);

(OA) 1.2.2.4 confirming that a valid calibration certificate for the oil discharge monitoring equipment is available on board;[2]

(OA) 1.2.2.5 checking whether the appropriate entries have been made in Part II of the Oil Record Book or as an electronic record book[3] (MARPOL 90/04/19 Annex I reg.36, and where applicable, Polar Code part II-A/section 1.1);

(OA) 1.2.2.6 confirming that for oil tankers of 5,000 tonnes deadweight and above delivered on/after 1 February 2002 the loading conditions and intact stability information, in an approved form, is on board (MARPOL 90/04 Annex I reg.27);

(OA) 1.2.2.7 confirming that subdivision and damage stability information in an approved form, where applicable, is on board (MARPOL 90/04/14 Annex I reg.28);

(OA) 1.2.2.8 checking the certificates for the type approval of the oil pollution prevention equipment, such as the oil content meters and oil/water interface detectors, and sighting the records of the various oil discharge monitoring equipment, as applicable (MARPOL 90/04 Annex I reg.31);

(OA) 1.2.2.9 checking that the ship is allowed continued operation according to the phase-out scheme of MARPOL 90/04/14 Annex I reg.20);

(OA) 1.2.2.10 confirming that, if applicable, a ship-to-ship (STS) operations plan approved by the Administration has been provided (MARPOL Annex I reg.41);

(OA) 1.2.2.11 confirming, where applicable, the approved stability instrument is available on board and operating satisfactorily (MARPOL 90/04/14 Annex I reg.28); and

(OA) 1.2.2.12 confirming, when carriage of a stability instrument is waived, the alternative means of verification for intact and damage stability recorded on Form B attached to the IOPP Certificate is available on board and is being applied effectively (MARPOL 90/04/14Annex I reg.3).

(OA) 1.2.3 For oil pollution prevention the annual survey should consist of:

[1] Refer to the *Condition Assessment Scheme* (resolution MEPC.94(46)), as amended.

[2] Applicable for installations complying with the *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (resolution MEPC.108(49)), as amended.

[3] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(OA) 1.2.3.1 examining externally the oil filtering equipment and confirming, as far as practicable, its satisfactory operation including, when appropriate, testing the operation of the automatic means provided to stop the discharge of effluent and the alarm for the oil filtering equipment (MARPOL 90/04/15 Annex I regs.14 and 15);

(OA) 1.2.3.2 testing, where fitted, the oil filtering equipment required for discharge in special areas (MARPOL 90/04/15 Annex I reg.15);

(OA) 1.2.3.3 confirming the segregation of oil fuel and water ballast systems and that the arrangements prohibit the carriage of oil in forepeak tanks or in spaces forward of the collision bulkhead (MARPOL 90/04 Annex I reg.16);

(OA) 1.2.3.4 checking that the arrangement of oil residue (sludge) tank and its discharge arrangements are satisfactory and confirming that, where applicable, homogenizers, sludge incinerators or other recognized means for the control of sludge are satisfactory (MARPOL 90/04/15 Annex I reg.12 and, where applicable, Polar Code part II-A/para.1.2.4); and

(OA) 1.2.3.5 confirming that a standard discharge connection is provided (MARPOL 90/04 Annex I reg.13).

(OA) 1.2.4 For oil pollution prevention the annual survey of the additional requirements for oil tankers should consist of:

(OA) 1.2.4.1 examining the oil discharge monitoring and control system and its associated equipment (MARPOL 90/04 Annex I reg.31) and, in particular:

(OA) 1.2.4.1.1 examining externally the system and equipment and, if applicable, verifying that the instrument is properly sealed;

(OA) 1.2.4.1.2 confirming, as far as practicable, the satisfactory operation of the oil discharge monitoring and control system including the oil content meter and, where applicable, the automatic and manual means provided to stop the discharge of effluent and the starting interlock;

(OA) 1.2.4.1.3 observing that indicators and recording devices are operable and verifying that a sufficient supply of consumables for the recorders is on board; and

(OA) 1.2.4.1.4 testing, as far as practicable, any audible or visual alarms fitted to the oil discharge monitoring and control system;

(OA) 1.2.4.2 examining, as far as practicable, the oil/water interface detectors (MARPOL 90/04 Annex I reg.32);

(OA) 1.2.4.3 confirming that no cross-connections have been fitted between the cargo and segregated ballast systems (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.4 where a portable spool piece is provided for the emergency discharge of segregated ballast by connecting the segregated ballast system to a cargo pump, confirming that non-return valves are fitted on the

segregated ballast connections and that the spool piece is mounted in a conspicuous position in the pump-room with a permanent notice restricting its use (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.5 confirming by sighting that there has been no contamination with oil in the segregated ballast tanks (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.6 confirming, as far as practicable, that the dedicated clean ballast tank arrangement remains satisfactory (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.7 confirming by sighting that there has been no contamination with oil in the dedicated clean ballast tanks (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.8 confirming, as far as practicable, that the crude oil washing system remains satisfactory (MARPOL 90/04 Annex I reg.33) and, in particular:

(OA) 1.2.4.8.1 examining externally the crude oil washing piping, pumps, valves and deck-mounted washing machines for signs of leakage and checking that all anchoring devices for crude oil washing piping are intact and secure;

(OA) 1.2.4.8.2 confirming, in those cases where drive units are not integral with the tank cleaning machines, that the number of operational drive units as specified in the Manual are on board;

(OA) 1.2.4.8.3 checking that, when fitted, steam heaters for water washing can be properly isolated during crude oil washing operations, either by double shut-off valves or clearly identifiable blanks;

(OA) 1.2.4.8.4 checking that the prescribed means of communication between the deck watchkeeper and the cargo control position is operational;

(OA) 1.2.4.8.5 confirming that an overpressure relief device (or other approved arrangement) is fitted to the pumps supplying the crude oil washing systems;

(OA) 1.2.4.8.6 confirming that flexible hoses for the supply of oil to the washing machines on combination carriers are of an approved type, are properly stored and are in good condition;

(OA) 1.2.4.9 verifying, where applicable and as far as practicable, the effectiveness of the crude oil washing system (MARPOL 90/04 Annex I reg.33) and, in particular:

(OA) 1.2.4.9.1 checking tanks containing departure and/or arrival ballast water, as applicable, to confirm the effectiveness of the cleaning and stripping;

(OA) 1.2.4.9.2 checking, as far as practicable, that the crude oil washing machines are operable and, when the survey is carried out during crude oil washing operations, observing the proper operation of the washing machines by means of the movement indicators and/or sound patterns or other approved methods;

(OA) 1.2.4.9.3 checking, as far as practicable, the effectiveness of the stripping system in appropriate cargo tanks by observing the monitoring equipment and by hand-dipping or other approved means;

(OA) 1.2.4.10 confirming that on those existing tankers operating with special ballast arrangements the arrangements are as approved and are satisfactory (MARPOL 90/04 Annex I reg.18);

(OA) 1.2.4.11 confirming, as appropriate and as far as practicable, that the arrangements for the prevention of oil pollution in the event of collision or stranding are approved and are satisfactory (MARPOL 90/04/14 Annex I regs.19 to 22, Polar Code part II-A/paras.1.2.2 and 1.2.3);

(OA) 1.2.4.12 examining the piping systems associated with the discharge of dirty ballast or oil-contaminated water including the part flow system, if fitted (MARPOL 90/04 Annex I reg.30);

(OA) 1.2.4.13 testing the communication system between the observation and discharge control positions (MARPOL 90/04 Annex I reg.30);

(OA) 1.2.4.14 examining the means of draining cargo pumps and cargo lines, including the stripping device and the connections for pumping to the slop or cargo tanks or ashore (MARPOL 90/04 Annex I reg.30); and

(OA) 1.2.4.15 confirming for oil tankers of 5,000 tonnes deadweight and above that arrangements are in place to provide prompt access to shore-based damage stability and residual structural strength computerized calculation programs (MARPOL 90/04 Annex I reg.37.4).

(OA) 1.2.5 For oil pollution prevention the completion of the annual survey should consist of:

(OA) 1.2.5.1 after a satisfactory survey, endorsing the International Oil Pollution Prevention Certificate; and

(OA) 1.2.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(OIn) **1.3** **Intermediate surveys** – see part "General", section 4.3

(OIn) 1.3.1 For oil pollution prevention the examination of current certificates and other records should consist of:

(OIn) 1.3.1.1 the provisions of (OA) 1.2.1.

(OIn) 1.3.2 For oil pollution prevention the examination of current certificates and other records for oil tankers should additionally consist of:

(OIn) 1.3.2.1 the provisions of (OA) 1.2.2.

(OIn) 1.3.3 For oil pollution prevention the intermediate survey should consist of:

(OIn) 1.3.3.1 the provisions of (OA) 1.2.3;

(OIn) 1.3.3.2 examining the oily-water separating equipment or oil filtering equipment or process unit, where fitted, including associated pumps, piping and fittings for wear and corrosion (MARPOL 90/04/15 Annex I regs.14 and 15); and

(OIn) 1.3.3.3 examining the oil content meter (15 ppm alarm and bilge monitor) for obvious defects, deterioration or damage and checking the record of calibration of the meter when done in accordance with the manufacturer's operational and instruction manual (MARPOL 90/04/15 Annex I reg.14).

(OIn) 1.3.4 For oil pollution prevention the intermediate survey of the additional requirements for oil tankers should consist of:

(OIn) 1.3.4.1 the provisions of (OA) 1.2.4;

(OIn) 1.3.4.2 examining the oil discharge monitoring and control system and the oil content meter for obvious defects, deterioration or damage, and checking the record of calibration of the meter when done in accordance with the manufacturer's operational and instruction manual (MARPOL 90/04 Annex I reg.31);

(OIn) 1.3.4.3 confirming the satisfactory operation of the oil/water interface detectors (MARPOL 90/04 Annex I reg.32);

(OIn) 1.3.4.4 for the crude oil washing system (MARPOL 90/04 Annex I reg.33):

(OIn) 1.3.4.4.1 examining the crude oil washing piping outside the cargo tanks; if upon examination there is any doubt as to its condition, the piping may be required to be pressure tested, gauged or both; particular attention should be paid to any repairs such as welded doublers;

(OIn) 1.3.4.4.2 confirming the satisfactory operation of the isolation valves to steam heaters for washing water, when fitted;

(OIn) 1.3.4.4.3 examining at least two selected cargo tanks for the express purpose of verifying the continued effectiveness of the installed crude oil washing and stripping systems; if a tank cannot be gas freed for the safe entry of the surveyor, an internal examination of it should not be conducted, in which case the verification is to be made by another alternative method acceptable to the Administration; an acceptable alternative would be satisfactory results during the surveys required by (OA) 1.2.4.9 (MARPOL 90/04 Annex I reg.33); and

(OIn) 1.3.4.5 examining the manual and/or remote operation of the individual tank valves (or other similar closing devices) to be kept closed at sea (MARPOL 90/04 Annex I regs.23 and 26).

(OIn) 1.3.5 For the oil pollution prevention the completion of the intermediate survey should consist of:

(OIn) 1.3.5.1 after a satisfactory survey, endorsing the International Oil Pollution Prevention Certificate; and

(OIn) 1.3.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(OR) **1.4** **Renewal surveys** – see part "General" section 4.5

(OR) 1.4.1 For oil pollution prevention the examination of current certificates and other records should consist of:

(OR) 1.4.1.1 the provisions of (OA) 1.2.1, except for the validity of the International Oil Pollution Prevention Certificate; and

(OR) 1.4.1.2 verifying that, if applicable, the 15 ppm bilge alarm has been calibrated by the manufacturer or a person authorized by the manufacturer and that a valid calibration certificate is available on board.[1]

(OR) 1.4.2 For oil pollution prevention the examination of current certificates and other records for tankers should additionally consist of:

(OR) 1.4.2.1 the provisions of (OA) 1.2.2; and

(OR) 1.4.2.2 verifying that, if applicable, the oil discharge monitoring equipment has been calibrated and that a valid calibration certificate is available on board.[2]

(OR) 1.4.3 For oil pollution prevention the renewal survey should consist of:

(OR) 1.4.3.1 the provisions of (OIn) 1.3.3;

(OR) 1.4.3.2 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oily-water separating equipment or oil filtering equipment (MARPOL 90/04/15 Annex I reg.14);

(OR) 1.4.3.3 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oil discharge monitoring and control system, including where practicable the automatic and manual operation of the means provided to stop the discharge of effluent (MARPOL 90/04 Annex I reg.31);

(OR) 1.4.3.4 confirming the satisfactory operation of the alarm for the oil filtering system (MARPOL 90/04/15 Annex I reg.14); and

(OR) 1.4.3.5 confirming the satisfactory operation of homogenizers, sludge incinerators or other recognized means for the control of sludge when the size of oil residue (sludge) tank is approved on the basis of such installations (MARPOL 90/04/15 Annex I reg.12).

(OR) 1.4.4 For oil pollution prevention the renewal survey of the additional requirements for oil tankers should consist of:

(OR) 1.4.4.1 the provisions of (OIn) 1.3.4;

[1] Applicable for installations complying with the *Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships* (resolution MEPC.107(49)), as amended

[2] Applicable for installations complying with the *Revised guidelines and specifications for oil discharge monitoring and control systems for oil tankers* (resolution MEPC.108(49)), as amended.

(OR) 1.4.4.2 confirming that the arrangements of slop tanks or cargo tanks designated as slop tanks and associated piping systems are satisfactory (MARPOL 90/04/15 Annex I regs.29 and 34);

(OR) 1.4.4.3 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oil discharge monitoring and control system and its associated equipment, including the oil/water interface detectors (MARPOL 90/04 Annex I regs.31 and 32);

(OR) 1.4.4.4 confirming that the arrangements of pumps, pipes and valves are in accordance with the requirements for SBT systems (MARPOL 90/04 Annex I reg.18);

(OR) 1.4.4.5 confirming that the arrangements of pumps, pipes and valves are in accordance with the *Revised specifications for oil tankers with dedicated clean ballast tanks* (MARPOL 90/04 Annex I reg.18);

(OR) 1.4.4.6 confirming that the crude oil washing system is in accordance with the requirements for such systems (MARPOL 90/04 Annex I reg.33) and, in particular:

(OR) 1.4.4.6.1 carrying out pressure testing of the crude oil washing system to at least the working pressure;

(OR) 1.4.4.6.2 examining the cargo tanks for the express purpose of verifying the continued effectiveness of the installed crude oil washing and stripping systems;

(OR) 1.4.4.6.3 examining internally, when fitted, the isolation valves for any steam heaters;

(OR) 1.4.4.6.4 verifying, by internal tank inspection or by another alternative method acceptable to the Administration, the effectiveness of the crude oil washing system; if the tank cannot be gas freed for the safe entry of the surveyor, an internal inspection should not be conducted; an acceptable alternative would be satisfactory results during the surveys required by (OA) 1.2.4.9 (MARPOL 90/04 Annex I reg.33);

(OR) 1.4.4.7 confirming that there is no leakage from those ballast pipelines passing through cargo tanks and those cargo pipelines passing through ballast tanks (MARPOL 90/04 Annex I regs.18 and 33);

(OR) 1.4.4.8 confirming that the pumping, piping and discharge arrangements are satisfactory (MARPOL 90/04 Annex I reg.30) and, in particular:

(OR) 1.4.4.8.1 confirming that the piping systems associated with the discharge of dirty ballast water or oil contaminated water are satisfactory;

(OR) 1.4.4.8.2 confirming that the means of draining cargo pumps and cargo lines, including the stripping device and the connections for pumping to the slop or cargo tanks or ashore are satisfactory;

(OR) 1.4.4.8.3 confirming that the arrangements for the part flow system, where fitted, are satisfactory;

(OR) 1.4.4.9 confirming that closing devices installed in the cargo transfer system and cargo piping as appropriate are satisfactory (MARPOL 90/04 Annex I regs.23 and 26);

(OR) 1.4.4.10 confirming, as appropriate and as far as practicable, that the arrangements for the prevention of oil pollution in the event of collision or stranding are satisfactory (MARPOL 90/04/14 Annex I regs.19 to 22; Polar Code part II-A/paras.1.2.2 and 1.2.3); and

(OR) 1.4.4.11 confirming for oil tankers of 5,000 tonnes deadweight and above that arrangements are in place to provide prompt access to shore-based damage stability and residual structural strength computerized calculation programs (MARPOL 90/04 Annex I reg.37.4).

(OR) 1.4.5 For oil pollution prevention the completion of the renewal survey should consist of:

(OR) 1.4.5.1 after a satisfactory survey, issuing the International Oil Pollution Prevention Certificate.

(N) **2** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL POLLUTION PREVENTION CERTIFICATE FOR THE CARRIAGE OF NOXIOUS LIQUID SUBSTANCES IN BULK**

(NI) **2.1** **Initial surveys** – see part "General", section 4.1

(NI) 2.1.1 For the carriage of noxious liquid substances in bulk the examination of plans and designs (as applicable to the cargoes the ship is to be certified to carry) should consist of:

(NI) 2.1.1.1 drawing up the list of noxious liquid substances it is proposed the ship will be certified to carry (MARPOL 90/04 Annex II reg.6);

(NI) 2.1.1.2 examining the pumping system (MARPOL 90/04 Annex II reg.12);

(NI) 2.1.1.3 examining the stripping system (MARPOL 90/04 Annex II reg.12);

(NI) 2.1.1.4 examining the tank washing system and equipment (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.1.5 examining the underwater discharge arrangements (MARPOL 90/04 Annex II reg.12);

(NI) 2.1.1.6 examining the ventilation equipment for residue removal (MARPOL 90/04 Annex II reg.13 and App.7);

(NI) 2.1.1.7 examining the heating system for solidifying and high viscosity substances (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.1.8 examining the Procedures and Arrangements Manual (including cargo carriage requirements to meet Annex II regulations) (MARPOL 90/04 Annex II reg.14 and App.4 and where applicable, Polar Code part II-A/ch.2, MEPC.1/Circ.856);

(NI) 2.1.1.9 examining the shipboard marine pollution emergency plan (MARPOL 90/04 Annex II reg.17, and where applicable, Polar Code part II-A/ch.2); and

(NI) 2.1.1.10 examining, if applicable, the construction and arrangements of a ship certified to carry individually identified vegetable oils under exemption from the carriage requirements (MARPOL 90/04 Annex II, reg.4.1.3).

(NI) 2.1.2 For the carriage of noxious liquid substances in bulk, the survey during construction and after installation (as applicable to the cargoes the ship is to be certified to carry) should consist of:

(NI) 2.1.2.1 confirming that the pumping and stripping systems are satisfactory and that portable pipes or bends in sufficient number, if required, are on board (MARPOL 90/04 Annex II reg.12);

(NI) 2.1.2.2 conducting the water test for assessing the stripping quantity, as required (MARPOL73/78/90/04 Annex II reg.12 and App.5);

(NI) 2.1.2.3 confirming that the tank washing machines provided on board are in working order, are those described in the Procedures and Arrangements Manual and are installed in accordance with the approved plans (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.2.4 confirming that the wash water heating system, if required, is installed in accordance with the approved plans (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.2.5 confirming that the number and position of tank cleaning openings for portable machines are in accordance with the approved plans (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.2.6 confirming that the underwater discharge outlet or outlets are in accordance with the approved plans (MARPOL 90/04 Annex II reg.12);

(NI) 2.1.2.7 verifying by actual test that the discharge rate of the pumps, where a variable rate type is used, can be controlled as specified in the Procedures and Arrangements Manual (MARPOL 90/04 Annex II reg.14 and App.4);

(NI) 2.1.2.8 confirming that the ventilation equipment for residue removal is installed in accordance with the approved plan and is in working order and that the pressure in the driving medium for portable fans for ventilation equipment for residue removal can be achieved to give the required fan capacity (MARPOL 90/04 Annex II reg.13 and App.7);

(NI) 2.1.2.9 confirming that the heating system for solidifying and high viscosity substances is installed in accordance with the approved plan (MARPOL 90/04 Annex II reg.14 and App.4); and

(NI) 2.1.2.10 confirming if applicable the construction and arrangements of a ship certified to carry individually identified vegetable oils under exemption from the carriage requirements (MARPOL 90/04 Annex II reg.4.1.3).

(NI) 2.1.3 For the carriage of noxious liquid substances in bulk the check that the required documentation has been placed on board cargo ships (as applicable to the cargoes the ship is to be certified to carry) should consist of:

(NI) 2.1.3.1 confirming that the Procedures and Arrangements Manual has been provided (MARPOL 90/04 Annex II reg.14, and where applicable, Polar Code part II-A ch.2, MEPC.1/Circ.856);

(NI) 2.1.3.2 confirming that the Cargo Record Book or as an electronic record book[1] has been provided (MARPOL 90/04/19 Annex II reg.15, and where applicable, Polar Code part II-A ch.2); and

(NI) 2.1.3.3 confirming that the shipboard marine pollution emergency plan is provided (MARPOL 04 Annex II, reg.17, and where applicable, Polar Code part II-A ch.2).

(NI) 2.1.4 For the carriage of noxious liquid substances in bulk the completion of the initial survey should consist of:

(NI) 2.1.4.1 after a satisfactory survey, issuing the International Certificate for the Carriage of Noxious Liquid Substances in Bulk.

(NA) **2.2** **Annual surveys** – see part "General", section 4.2

(NA) 2.2.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:

(NA) 2.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(NA) 2.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(NA) 2.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;

(NA) 2.2.1.4 checking the certificates of class, if the ship is classed with a classification society;

(NA) 2.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(NA) 2.2.1.6 checking the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(NA) 2.2.1.7 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(NA) 2.2.1.8 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(NA) 2.2.1.9 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(NA) 2.2.1.10 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(NA) 2.2.1.11 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(NA) 2.2.1.12 checking, when appropriate, the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(NA) 2.2.1.13 checking the validity of the International Ship Security Certificate;

(NA) 2.2.1.14 checking, as appropriate, the validity of the Polar Ship Certificate;

(NA) 2.2.1.15 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(NA) 2.2.1.16 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(NA) 2.2.1.17 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(NA) 2.2.1.18 confirming that the Procedures and Arrangements Manual is on board (MARPOL 90/04 Annex II reg.14, and where applicable, Polar Code part II-A ch.2, MEPC.1/Circ.856);

(NA) 2.2.1.19 confirming that the Cargo Record Book or as an electronic record book[2] is being correctly used (MARPOL 90/04/19 Annex II reg.15, and where applicable, Polar Code part II-A ch.2);

(NA) 2.2.1.20 confirming that the shipboard marine pollution emergency plan is on board (MARPOL 90/04 Annex II reg.17, and where applicable, Polar Code part II-A ch.2); and

(NA) 2.2.1.21 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(NA) 2.2.2 For the carriage of noxious liquid substances in bulk the annual survey should consist of:

(NA) 2.2.2.1 examining externally and confirming that the pumping and piping systems, including a stripping system if fitted, and associated equipment remain as approved (MARPOL 90/04 Annex II reg.12);

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

[2] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(NA) 2.2.2.2 examining externally the tank washing piping and confirming that the type, capacity, number and arrangement of the tank washing machines are as approved (MARPOL 90/04 Annex II reg.14 and App.4);

(NA) 2.2.2.3 examining externally the wash water heating system (MARPOL 90/04 Annex II reg.14 and App.4);

(NA) 2.2.2.4 examining externally, as far as practicable, the underwater discharge arrangements (MARPOL 90/04 Annex II reg.12);

(NA) 2.2.2.5 confirming that the means of controlling the rate of discharge of the residue is as approved (MARPOL 90/04 Annex II reg.14 and App.4);

(NA) 2.2.2.6 confirming that the ventilation equipment for residue removal is as approved (MARPOL 90/04 Annex II reg.13 and App.7);

(NA) 2.2.2.7 examining externally, as far as is accessible, the heating system required for solidifying and high viscosity substances (MARPOL 90/04 Annex II reg.14 and App.4); and

(NA) 2.2.2.8 examining any additional requirements listed on the International Certificate for the Carriage of Noxious Liquid Substances in Bulk.

(NA) 2.2.3 For the carriage of noxious liquid substances in bulk the completion of the annual survey should consist of:

(NA) 2.2.3.1 after a satisfactory survey, endorsing the International Certificate for the Carriage of Noxious Liquid Substances in Bulk; and

(NA) 2.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General" section 4.8.

(NIn) **2.3** **Intermediate surveys** – see part "General", section 4.3

(NIn) 2.3.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:

(NIn) 2.3.1.1 the provisions of (NA) 2.2.1.

(NIn) 2.3.2 For the carriage of noxious liquid substances in bulk the intermediate survey should consist of:

(NIn) 2.3.2.1 the provisions of (NA) 2.2.2;

(NIn) 2.3.2.2 verifying from the Cargo Record Book or as an electronic record book[1] that the pumping and stripping arrangements have been emptying the tanks efficiently and are all in working order (MARPOL 90/04 Annex II regs.12 and 15);

(NIn) 2.3.2.3 confirming, if possible, that the discharge outlet(s) are in good condition (MARPOL 90/04 Annex II P & A Standards); and

(NIn) 2.3.2.4 confirming that the ventilation equipment for residue removal is satisfactory and that the pressure in the driving medium for portable fans for ventilation equipment for residue removal can be achieved to give the required fan capacity (MARPOL 90/04 Annex II App.7).

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(NIn) 2.3.3 For the carriage of noxious liquid substances in bulk the completion of the intermediate survey should consist of:

(NIn) 2.3.3.1 after a satisfactory survey, endorsing the International Certificate for the Carriage of Noxious Liquid Substances in Bulk; and

(NIn) 2.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General", section 4.8.

(NR) **2.4** **Renewal surveys** – see part "General", section 4.4

(NR) 2.4.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:

(NR) 2.4.1.1 the provisions of (NA) 2.2.1, except for the validity of the International Certificate for the Carriage of Noxious Liquid Substances in Bulk.

(NR) 2.4.2 For the carriage of noxious liquid substances in bulk the renewal survey should consist of:

(NR) 2.4.2.1 the provisions of (NIn) 2.3.2;

(NR) 2.4.2.2 confirming that the pumping and stripping systems are satisfactory and that portable pipes or bends in sufficient number, if required, are on board (MARPOL 73/78/90/04 Annex II reg.12);

(NR) 2.4.2.3 conducting the water test for assessing the stripping quantity, as required (MARPOL 73/78/90/04 Annex II reg.12 and App.5);

(NR) 2.4.2.4 confirming that the tank washing machines provided on board are in working order, are those described in the Procedures and Arrangements Manual and are installed in accordance with the approved plans (MARPOL 90/04 Annex II reg.14 and App.4);

(NR) 2.4.2.5 confirming that the wash water heating system, if required, is installed in accordance with the approved plans and is in working order (MARPOL 90/04 Annex II reg.14 and App.4);

(NR) 2.4.2.6 confirming that the number and position of tank cleaning openings for portable machines are in accordance with the approved plans (MARPOL 90/04 Annex II reg.14 and App.4);

(NR) 2.4.2.7 confirming that the underwater discharge outlet(s) are in good condition and are in accordance with the approved plans (MARPOL 90/04 Annex II regs.12, 14 and App.4);

(NR) 2.4.2.8 verifying by actual test that the discharge rate of the pumps, where a variable rate type is used, can be controlled as specified in the Procedures and Arrangements Manual (MARPOL 90/04 Annex II reg.14 and App.4);

(NR) 2.4.2.9 confirming that the ventilation equipment for residue removal is installed in accordance with the approved plan and is in working order (MARPOL 90/04 Annex II regs.12, 14 and App.4); and

(NR) 2.4.2.10 confirming that the heating system for solidifying and high viscosity substances is installed in accordance with the approved plan and is in working order (MARPOL 90/04 Annex II regs.12, 14 and App.4).

(NR) 2.4.3 For the carriage of noxious liquid substances in bulk the completion of renewal survey should consist of:

(NR) 2.4.3.1 after a satisfactory survey, issuing the International Certificate for the Carriage of Noxious Liquid Substances in Bulk.

(S) **3** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL SEWAGE POLLUTION PREVENTION CERTIFICATE**

(SI) **3.1** **Initial surveys** – see part "General", section 4.1

(SI) 3.1.1 For sewage pollution prevention the examination of plans and designs should consist of:

(SI) 3.1.1.1 examining as appropriate the arrangements for the provision of a sewage treatment plant, or of a sewage comminuting and disinfecting system, or of a sewage holding tank (MARPOL Annex IV reg.9);

(SI) 3.1.1.2 if a sewage treatment plant is fitted, checking that it is type-approved by the Administration in accordance with the appropriate resolution (MARPOL Annex IV, regs.9.1.1 and 9.2.1);

(SI) 3.1.1.3 if a sewage comminuting and disinfecting system is fitted, checking that it is approved by the Administration and that facilities for the temporary storage of sewage are provided (MARPOL Annex IV, reg.9.1.2);

(SI) 3.1.1.4 if a sewage holding tank is fitted, checking its capacity having regard to the number of persons on board (MARPOL Annex IV, regs.9.1.3 and 9.2.2);

(SI) 3.1.1.5 examining the arrangements for the provision of a standard discharge connection (MARPOL Annex IV reg.10); and

(SI) 3.1.1.6 examining the arrangements for the provision of a pipeline for the discharge of sewage to a reception facility (MARPOL Annex IV reg.10).

(SI) 3.1.2 For sewage pollution prevention the survey during construction and after installation should consist of:

(SI) 3.1.2.1 checking externally, as applicable, the sewage treatment plant or the sewage comminuting and disinfecting system, and confirming their operation (MARPOL Annex IV, regs.4.1.1, 9.1.1, 9.1.2 and 9.2.1);

(SI) 3.1.2.2 if a sewage holding tank is fitted, checking that it has been constructed in a satisfactory manner, and checking that the holding tank has a means to indicate visually the amount of its contents (MARPOL Annex IV, regs.9.1.3 and 9.2.2);

(SI) 3.1.2.3 confirming that a standard discharge connection is provided (MARPOL Annex IV reg.10); and

(SI) 3.1.2.4 confirming that a pipeline for the discharge of sewage to a reception facility is provided (MARPOL Annex IV reg.10).

(SR) **3.2** **Renewal surveys** – See "General", section 4.5

(SR) 3.2.1 For sewage pollution prevention the examination of current certificates and other records should consist of:

(SR) 3.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate or Passenger Ship Safety Certificate;

(SR) 3.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(SR) 3.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;

(SR) 3.2.1.4 checking the validity of the International Air Pollution Prevention Certificate;

(SR) 3.2.1.5 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(SR) 3.2.1.6 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5);[1]

(SR) 3.2.1.7 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(SR) 3.2.1.8 checking the validity of the International Ship Security Certificate;

(SR) 3.2.1.9 checking the certificates of class, if the ship is classed with a classification society;

(SR) 3.2.1.10 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemical in Bulk;

(SR) 3.2.1.11 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(SR) 3.2.1.12 checking when appropriate the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(SR) 3.2.1.13 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(SR) 3.2.1.14 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(SR) 3.2.1.15 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board, where applicable;

(SR) 3.2.1.16 checking, as appropriate, the validity of the Polar Ship Certificate;

(SR) 3.2.1.17 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the certificate; and

(SR) 3.2.1.18 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(SR) 3.2.2 For sewage pollution prevention the renewal survey should consist of:

(SR) 3.2.2.1 confirming that no change has been made nor any new equipment installed which would affect the validity of the certificate (MARPOL Annex IV reg.4.8);

(SR) 3.2.2.2 examining externally the sewage pollution prevention system and confirming, as far as practicable, its satisfactory operation (MARPOL Annex IV, reg.9);

(SR) 3.2.2.3 confirming that a procedure for discharge of animal effluent is implemented on board (MARPOL 73/78/07 Annex IV reg.11.1.1, and where applicable, Polar Code part II-A section 4.2); and

(SR) 3.2.2.4 confirming, for ships where a sewage holding tank is fitted as a sewage system, that an approval for the rate of discharge is available (MARPOL Annex IV, regs.9.1.3 and 11.1.1).

(SR) 3.2.3 For sewage pollution prevention the completion of the renewal survey should consist of:

(SR) 3.2.3.1 after a satisfactory survey the International Sewage Prevention Certificate should be issued.

(A) **4** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE AND THE NO_X TECHNICAL CODE**

(AI) **4.1** **Initial surveys** – see part "General", section 4.1

(AI) 4.1.1 For air pollution prevention the examination of plans and designs should consist of:

(AI) 4.1.1.1 examining the arrangements for systems using ozone-depleting substances (MARPOL Annex VI reg.12);

(AI) 4.1.1.2 examining the arrangements for NO_X emission control, if applicable (MARPOL Annex VI reg.13);

(AI) 4.1.1.3 examining the arrangements for SO_X and particulate matter control, if applicable (MARPOL Annex VI reg.14);

(AI) 4.1.1.4 examining, where applicable as an equivalence, the plans and arrangements for the exhaust gas cleaning system[1] or other technological methods (MARPOL Annex VI reg.4);

(AI) 4.1.1.5 examining the arrangements for vapour collection systems, if applicable (MARPOL Annex VI reg.15 and MSC/Circ.585); and

(AI) 4.1.1.6 examining the arrangements for shipboard incinerators, if applicable (MARPOL Annex VI reg.16).

(AI) 4.1.2 For air pollution prevention the survey should consist of:

(AI) 4.1.2.1 Ozone-depleting substances (MARPOL Annex VI reg.12):

(AI) 4.1.2.1.1 confirming, if applicable, the satisfactory installation and operation of systems using ozone-depleting substances;

(AI) 4.1.2.1.2 confirming that no installation or equipment containing ozone-depleting substances, other than hydrochlorofluorocarbons, has been installed since 19 May 2005, (MARPOL Annex VI reg.12.3.1);

(AI) 4.1.2.1.3 confirming that no installation or equipment containing hydrochlorofluorocarbons have been fitted since 1 January 2020 (MARPOL Annex VI reg.12.3.2);

(AI) 4.1.2.2 Nitrogen oxide emissions from marine diesel engines (MARPOL Annex VI reg.13):

(AI) 4.1.2.2.1 confirming that all marine diesel engines which are required to be certified are pre-certified in accordance with section 2.2 of the NO_X Technical Code to the required Tier and installed in accordance with the approved duty cycle.

(AI) 4.1.2.2.1.1 If the engine parameter check method is used:

(AI) 4.1.2.2.1.1.1 an onboard verification survey in accordance with section 6.2 of the NO_X Technical Code;

(AI) 4.1.2.2.1.2 If the simplified method is used:

(AI) 4.1.2.2.1.2.1 an onboard verification survey in accordance with section 6.3 of the NO_X Technical Code;

(AI) 4.1.2.2.1.3 If the direct measurement and monitoring method is used (for existing ships only):

[1] Refer to the *2015 Guidelines for exhaust gas cleaning systems* (resolution MEPC.259(68)).

(AI) 4.1.2.2.1.3.1 an onboard verification survey, in accordance with section 6.4 of the NO_X Technical Code;

(AI) 4.1.2.2.1.4 For marine diesel engines with an output of more than 5,000 kW and a per cylinder displacement at or above 90 litres/cylinder installed on ships constructed between 1 January 1990 and 31 December 1999, check[1] (MARPOL Annex VI reg.13.7.3):

.1 whether an approved method exists but is not applicable;

.2 whether an approved method is not commercially available at this survey; or

.3 that an approved method is installed and, where this is the case, that there is an approved method file,

and apply the verification procedures as given in the approved method file;

.4 or that the engine has been certified, confirming that it operates within the limits set forth for Tier I, Tier II or Tier III;

(AI) 4.1.2.3 Sulphur oxides and particulate matter (MARPOL Annex VI reg.14):

(AI) 4.1.2.3.1 confirming, if appropriate, that:

.1 satisfactory arrangements are in place for using compliant fuel as required; or

.2 satisfactory installation and operation of the fuel switching arrangements are in place when tanks are provided for different grades of fuel, and that a written procedure showing how the fuel oil changeover is done, is available; or

.3 satisfactory installation and operation of the exhaust gas cleaning system[2] or other technological methods are examined (MARPOL Annex VI reg.4);

(AI) 4.1.2.4 Volatile organic compounds (MARPOL Annex VI reg.15) (if applicable):

(AI) 4.1.2.4.1 confirming the satisfactory installation of the vapour collection piping;

(AI) 4.1.2.4.2 confirming the satisfactory installation and operation of the means provided to eliminate the collection of condensation in the system, such as drains in low points of the line end;

(AI) 4.1.2.4.3 confirming the satisfactory installation and operation of the isolation valves at the vapour manifolds;

(AI) 4.1.2.4.4 confirming that the ends of each line are properly identified as vapour collection lines;

[1] Refer to the *2014 Guidelines on the approved method process* (resolution MEPC.243(66)).

[2] Refer to the *2015 Guidelines for exhaust gas cleaning systems* (resolution MEPC.259(68)).

(AI) 4.1.2.4.5 confirming that the vapour collection flanges are in accordance with the IMO guidelines and industrial standards;

(AI) 4.1.2.5 Shipboard incinerators (MARPOL Annex VI reg.16) (installed on or after 1 January 2000):

(AI) 4.1.2.5.1 confirming the satisfactory installation and operation of each incinerator;

(AI) 4.1.2.5.2 confirming that the manufacturer's name, incinerator model number/type and capacity in heat units per hour are permanently marked on the incinerator.

(AI) 4.1.3 For air pollution prevention the check that certificates and other relevant documentation have been placed on board should consist of:

(AI) 4.1.3.1 the provision of (AA) 4.2.2.2 as applicable except (AA) 4.2.2.2.15.

(AI) 4.1.4 For air pollution prevention the completion of the initial survey should consist of:

(AI) 4.1.4.1 after a satisfactory survey, issuing the International Air Pollution Prevention Certificate.

(AA) **4.2** **Annual surveys** – see "General", section 4.2

(AA) 4.2.1 For air pollution prevention the examination of current certificates and other records should consist of:

(AA) 4.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(AA) 4.2.1.2 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board, where applicable;

(AA) 4.2.1.3 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(AA) 4.2.1.4 checking the validity of the International Oil Pollution Prevention Certificate;

(AA) 4.2.1.5 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(AA) 4.2.1.6 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(AA) 4.2.1.7 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(AA) 4.2.1.8 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(AA) 4.2.1.9 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(AA) 4.2.1.10 checking the certificates of class, if the ship is classed with a classification society;

(AA) 4.2.1.11 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(AA) 4.2.1.12 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(AA) 4.2.1.13 checking that the master, officers and ratings are certificated as required by the STCW Convention; and

(AA) 4.2.1.14 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate.

(AA) 4.2.2 For air pollution prevention the annual survey should consist of the following:

(AA) 4.2.2.1 General:

(AA) 4.2.2.1.1 confirming that no changes have been made or any new equipment installed which would affect the validity of the certificate;

(AA) 4.2.2.2 Documentation:

(AA) 4.2.2.2.1 confirming that there is an ozone-depleting substances record book or an electronic record book,[2] if applicable (MARPOL Annex VI reg.12.6);

(AA) 4.2.2.2.2 confirming that there are Engine International Air Pollution Prevention (EIAPP) Certificates for each marine diesel engine, required to be certified, as described in chapter 2.1 of the NO_X Technical Code;

(AA) 4.2.2.2.3 confirming that there is on board an approved technical file for each marine diesel engine required to be certified;

(AA) 4.2.2.2.4 confirming that there is a record book or an electronic record book[3] of engine parameters for each marine diesel engine required to be certified in the case where the engine parameter check method is used as a means of onboard NO_X verification (NO_X Technical Code para.6.2.2);

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

[2] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

[3] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(AA) 4.2.2.2.5 confirming that there is an approved onboard monitoring manual for each marine diesel engine required to be certified in the case where the direct measurement and monitoring method is to be used as a means of onboard NO_X verification (NO_X Technical Code para.6.4.17.1);

(AA) 4.2.2.2.6 confirming that there is a record taking the form of a logbook or an electronic record book [1] as prescribed by the Administration, for recording the tier and on/off status (or changes) of marine diesel engines which are certified to both Tier II and Tier III or which are certified to Tier II only at entry into and exit from an emission control area (MARPOL Annex VI reg.13.5.3);

(AA) 4.2.2.2.7 confirming that there are written procedures covering fuel changeover, where applicable;

(AA) 4.2.2.2.8 confirming that there is a record of fuel changeover, where applicable, and that this record should take the form of a logbook or an electronic record book[2] as prescribed by the Administration (MARPOL Annex VI reg.14.6);[3]

(AA) 4.2.2.2.9 confirming that there is for each exhaust gas cleaning system-SO_X (EGCS-SO_x) an approved SO_X Emissions Compliance Plan (SECP), EGC system – Technical Manual (ETM-A or ETM-B), Onboard Monitoring Manual (OMM) and EGC Record Book or Electronic Logging System and additionally, if applicable, a SO_X Emissions Compliance Certificate (MARPOL Annex VI reg.4 and MEPC.259(68)) or approved documentation in respect of other technological means of achieving compliance;

(AA) 4.2.2.2.10 confirming that there is a VOC Management Plan, if required (MARPOL Annex VI reg.15.6);

(AA) 4.2.2.2.11 confirming that there is a transfer procedure, if required, for the VOC collection system;

(AA) 4.2.2.2.12 confirming that there is, if required, an IMO Type Approval Certificate for each incinerator on board (MARPOL Annex VI reg.16.6.1);

(AA) 4.2.2.2.13 confirming that there is an instruction manual for each incinerator if required (MARPOL Annex VI reg.16.7);

(AA) 4.2.2.2.14 confirming that there are records documenting training of the crew in operating each incinerator, if required;

(AA) 4.2.2.2.15 confirming that there are the required bunker delivery notes on board and the required fuel oil samples are kept under the ship's control (MARPOL Annex VI reg.18) or other relevant documentation;

(AA) 4.2.2.3 Systems containing ozone-depleting substances, if fitted:

(AA) 4.2.2.3.1 confirming that no new installation or equipment containing ozone-depleting substances except those covered by (AA) 4.2.2.3.2 have been fitted to the ship after 19 May 2005 (MARPOL Annex VI reg.12.3.1);

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

[2] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

[3] When not prescribed by the Administration, this information could be contained in the engine-room logbook, the deck logbook, the official logbook, the oil record book or an electronic record book, or a separate logbook solely for this purpose

(AA) 4.2.2.3.2 confirming that no installations containing hydrochlorofluorocarbons have been fitted since 1 January 2020 (MARPOL Annex VI reg.12.3.2);

(AA) 4.2.2.3.3 examining externally any installation or equipment as far as practicable to ensure satisfactory maintenance and that there are no emissions of ozone-depleting substances;

(AA) 4.2.2.3.4 confirming through documentary evidence that there has been no deliberate emission of ozone-depleting substance;

(AA) 4.2.2.4 Nitrogen oxide emissions from each diesel marine diesel engine:

(AA) 4.2.2.4.1 confirming that each marine diesel engine has been operated as required in accordance with its applicable NO_X emission limit(s);

(AA) 4.2.2.4.2 confirming that no marine diesel engine has been subject to major conversion in the intervening period;

(AA) 4.2.2.4.3 if the engine parameter check method is used:

(AA) 4.2.2.4.3.1 reviewing engine documentation contained in the technical file and the record book or an electronic record book[1] of engine parameters to check, as far as practicable, engine rating, duty and limitation/restrictions as given in the technical file;

(AA) 4.2.2.4.3.2 confirming that the engine has not undergone any modifications or adjustments outside the options and ranges permitted in the technical file since the last survey;

(AA) 4.2.2.4.3.3 conducting survey as detailed in the technical file;

(AA) 4.2.2.4.4 if the simplified method is used:

(AA) 4.2.2.4.4.1 reviewing engine documentation contained in the technical file;

(AA) 4.2.2.4.4.2 confirming that the test procedure is acceptable to the Administration;

(AA) 4.2.2.4.4.3 confirming that the analysers, engine performance sensors, ambient condition measurement equipment, span check gases and other test equipment are the correct type and have been calibrated in accordance with the NO_X Technical Code;

(AA) 4.2.2.4.4.4 confirming that the correct test cycle, as defined in the engine's technical file, is used for these onboard confirmation test measurements;

(AA) 4.2.2.4.4.5 ensuring that a fuel sample is taken during the test and submitted for analysis;

(AA) 4.2.2.4.4.6 witnessing the test and confirming that a copy of the test report has been submitted for approval on completion of the test;

(AA) 4.2.2.4.5 if the direct measurement and monitoring method is used:

(AA) 4.2.2.4.5.1 reviewing the technical file and the onboard monitoring manual to check that the arrangements are as approved;

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(AA) 4.2.2.4.5.2 the procedures to be checked in the direct monitoring and measure method and the data obtained as given in the approved onboard monitoring manual should be followed (NO_X Technical Code para.6.4.16.1);

(AA) 4.2.2.4.6 for a marine diesel engine with an output of more than 5,000 kW and a per cylinder displacement at or above 90 litres/cylinder installed on ships constructed between 1 January 1990 and 31 December 1999, checking:* (MARPOL Annex VI reg.13.7.3)

.1 whether an approved method exists but is not applicable;

.2 whether an approved method is not commercially available at this survey; or

.3 that an approved method is installed and where this is the case, that there is an approved method file,

and applying the verification procedures as given in the approved method file;

.4 or that the engine has been certified, confirming that it operates within the limits set forth for Tier I, Tier II or Tier III;

(AA) 4.2.2.5 Sulphur oxides and particulate matter:

confirming, if appropriate, that:

.1 satisfactory arrangements are in place for using compliant fuel as required; or

.2 satisfactory installation and operation of the fuel switching arrangements are in place when tanks are provided for different grades of fuel, including records of the changeover to and from low sulphur fuel during transit through an emission control area established for SO_X and particulate matter control; or

.3 satisfactory installation and operation of the exhaust gas cleaning system according to approved documentation, including sensors monitoring operational or emission parameters as set out in the OMM, and confirming that all relevant parameters as set out in the SECP, ETM and OMM are recorded and presented in the form or a report (MARPOL Annex VI reg.4 and MEPC.259(68)); or

.4 other technological methods are examined (MARPOL Annex VI reg.4);

(AA) 4.2.2.6 Volatile organic compounds (VOCs):

* Refer to the *2014 Guidelines on the approved method process* (resolution MEPC.243(66)).

(AA) 4.2.2.6.1 confirming that the vapour collect system, if required, is maintained in accordance with its approved arrangement;

(AA) 4.2.2.6.2 for ships carrying crude oil, confirming the VOC management plan has been implemented as appropriate;

(AA) 4.2.2.7 Incineration:

(AA) 4.2.2.7.1 confirming that prohibited materials have not been incinerated;

(AA) 4.2.2.7.2 confirming that shipboard incineration of sewage sludge or sludge oil in boilers or marine power plants is not undertaken while the ship is inside ports, harbours or estuaries;

(AA) 4.2.2.8 Incinerators (installed on or after 1 January 2000):

(AA) 4.2.2.8.1 confirming that operators have been trained as required;

(AA) 4.2.2.8.2 confirming from an external examination that each incinerator is in a generally satisfactory condition and free from leaks of gas or smoke;

(AA) 4.2.2.8.3 confirming that combustion chamber outlet temperatures have been maintained as required;

(AA) 4.2.2.8.4 confirming that each incinerator is maintained according to its approved arrangement.

(AA) 4.2.2.9 Fuel oil quality:

(AA) 4.2.2.9.1 confirming that bunker delivery notes as required conform to the requirements of MARPOL Annex VI, Appendix V;

(AA) 4.2.2.9.2 confirming that MARPOL samples as required are retained on board and labels duly completed or otherwise retained under the ship's control; and

(AA) 4.2.2.9.3 confirming that documentation in lieu of that required by (AA) 4.2.2.9.1 or 4.2.2.9.2 is available on board.

(AA) 4.2.3 For air pollution prevention the completion of the annual survey should consist of:

(AA) 4.2.3.1 after a satisfactory survey, endorsing the International Air Pollution Prevention certificate; and

(AA) 4.2.3.2 if a survey shows that the condition of the ship or its equipment is unsatisfactory – see "General", section 4.8.

(AIn) **4.3** **Intermediate surveys** – see "General", section 4.3

(AIn) 4.3.1 For air pollution prevention the examination of current certificates and other records should consist of:

(AIn) 4.3.1.1 the provisions of (AA) 4.2.1.

(AIn) 4.3.2 For air pollution prevention the intermediate survey should consist of:

(AIn)	4.3.2.1	the provisions of (AA) 4.2.2.
(AIn)	4.3.3	For air pollution prevention the completion of the intermediate survey should consist of:
(AIn)	4.3.3.1	after a satisfactory survey, endorsing the International Air Pollution Prevention Certificate; and
(AIn)	4.3.3.2	if a survey shows that the condition of the ship or its equipment is unsatisfactory see "General", section 4.8.
(AR)	**4.4**	**Renewal surveys** – see "General", section 4.5
(AR**)**	4.4.1	For air pollution prevention the examination of current certificates and other records should consist of:
(AR)	4.4.1.1	the provisions of (AA) 4.2.1 except the validity of the International Air Pollution Prevention Certificate.
(AR)	4.4.2	For air pollution prevention the renewal survey should consist of:
(AR)	4.4.2.1	the provisions of (AA) 4.2.2;
(AR)	4.4.2.2	for each incinerator the renewal survey should consist of:
(AR)	4.4.2.2.1	confirming, if necessary by simulated test or equivalent, the satisfactory operation of the alarms and safety devices.
(AR)	4.4.3	For air pollution prevention the completion of the renewal survey should consist of:
(AR)	4.4.3.1	after a satisfactory survey the International Air Pollution Prevention Certificate should be issued.

Annex 4

SURVEY GUIDELINES UNDER THE INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004

(B) 1 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL BALLAST WATER MANAGEMENT CERTIFICATE

(BI) **1.1 Initial surveys** – see part "General" section 2.1

(BI) 1.1.1 For the control and management of ships' ballast water and sediments the examination of plans and designs should consist of:

(BI) 1.1.1.1 examining the design and construction (BWM Convention 04, regulation B-5);

(BI) 1.1.1.2 examining the ballast water management plan (BWM Convention 04, regulation B-1);

(BI) 1.1.1.3 examining plans for the installation of ballast water management systems (BWMS) (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable); and

(BI) 1.1.1.4 if applicable, examining plans for the installation of prototype ballast water treatment technologies (BWM Convention 04, regulation D-4).

(BI) 1.1.2 For the control and management of ships' ballast water and sediments the survey during construction and after installation should consist of:

(BI) 1.1.2.1 confirming that the ballast water management plan has been provided (BWM Convention 04, regulation B-1);

(BI) 1.1.2.2 confirming that the ballast water record book has been provided (BWM Convention 04, regulation B-2);

(BI) 1.1.2.3 verifying that, if applicable, the prototype ballast water treatment technology installation has been carried out in accordance with the approved programme and that the workmanship of the installation is satisfactory (BWM Convention 04, regulation D-4);

(BI) 1.1.2.4 confirming that the BWMS(s) installed on or after 28 October 2020 are approved in accordance with the BWMS Code, as may be amended; and confirming that the BWMS(s) installed before 28 October 2020 are approved taking into account the guidelines[1] developed by the Organization or the BWMS Code, as may be amended (BWM Convention 04/18, regulation D-3, paragraphs 1.1 and 1.2); and

(BI) 1.1.2.5 confirming that, if applicable, a statement of compliance for a prototype ballast water treatment technology has been provided (BWM Convention 04, regulation D-4).

[1] Refer to resolutions MEPC.125(53), MEPC.174(58) or MEPC.279(70), as appropriate

(BI) 1.1.3 When the performance standard described in regulation D-2 is applicable, the survey after installation of BWMS (also applicable for installations on existing ships) should consist of:

(BI) 1.1.3.1 confirming that the certificate or certificates for type approval of BWMS(s) are available (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.2 confirming that a statement has been provided by the Administration, or by a laboratory authorized by the Administration, confirming that the electrical and electronic components of the BWMS(s) have been type-tested in accordance with the specifications for environmental testing contained in part 3 of the annex of the applicable[1] *Guidelines for approval of ballast water management systems* (G8) (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.3 confirming that equipment manuals for major components of the BWMS(s) in accordance with the relevant resolution[2] have been provided (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.4 confirming that an operations and technical manual for the BWMS(s), specific to the ship and approved, containing a technical description of the ballast water management system(s), operational and maintenance procedures, and backup procedures in case of equipment malfunction,* or an operation, maintenance and safety manual of the BWMS* has been provided (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.5 confirming that installation specifications for the BWMS(s), e.g. installation drawing, piping and instrumentation diagrams, have been provided (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.6 confirming that installation commissioning procedures for the BWMS(s) have been provided (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.7 confirming that initial calibration procedures of the BWMS(s) have been provided[3] (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.8 confirming that a valid calibration certificate is provided on board in accordance with the relevant resolution;[4]

(BI) 1.1.3.9 confirming that sampling facilities are provided and arranged such as to collect representative samples of the ship's ballast water from the BWMS(s) intake(s), or from a location before the ballast discharge points and any other points necessary for sampling as applicable[5] (BWM Convention 04/18, regulation D-3);

(BI) 1.1. 3.10 verifying that the BWMS installation has been carried out in accordance with the technical installation specification;

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[1] Only applicable to the BWMS type-approved in accordance with resolution MEPC.125(53) or MEPC.174(58).

[2] Only applicable to the BWMS type-approved in accordance with resolution MEPC.125(53) or MEPC.174(58).

[3] Only applicable to the BWMS type-approved in accordance with resolution MEPC.125(53) or MEPC.174(58).

[4] Applicable to the BWMS type-approved in accordance with resolutions MEPC.125(53), MEPC.174(58), MEPC.279(70) or the BWMS Code

[5] Refer to resolutions MEPC.125(53), MEPC.174(58), MEPC.279(70) or the BWMS Code, where applicable

(BI) 1.1.3.11 verifying that the BWMS is in conformity with the Type Approval Certificate of BWMS issued by Administration or its representative;

(BI) 1.1.3.12 verifying that the installation of the complete BWMS has been carried out in accordance with the manufacturer's equipment specification;

(BI) 1.1.3.13 verifying that any operational inlets and outlets are located in the positions indicated on the drawings of the pumping and piping arrangements;

(BI) 1.1.3.14 verifying that the workmanship of the installation is satisfactory and, in particular, that any bulkhead penetrations or penetrations of the ballast system piping are to the relevant approved standards;

(BI) 1.1.3.15 verifying in accordance with the relevant resolution[1] that the control and monitoring equipment operates correctly;

(BI) 1.1.3.16 confirming that, if applicable, the ballast water management recording device(s) are operable and that there is a sufficient supply of consumables for the recording device(s) on board (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.17 confirming the satisfactory installation and operation of the BWMS(s), including any audible or visual alarms (BWM Convention 04/18, regulation D-3);

(BI) 1.1.3.18 confirming that, if applicable,[2] the suitable bypasses or overrides to protect the safety of the ship and personnel are installed and used in the event of an emergency and these shall be connected to the BWMS so that any bypass of the BWMS shall activate an alarm. The bypass event shall be recorded by the control and monitoring equipment and within the ballast water record book;

(BI) 1.1.3.19 verifying that, if applicable,[3] installation commissioning procedures have been completed;

(BI) 1.1.3.20 verifying that the commissioning testing of the BWMS has been carried out after installation in accordance with the applicable guidelines developed by the Organization;[4]

(BI) 1.1.3.21 confirming that, if applicable, active substances are provided on board (BWM Convention 04/18, regulation D-3); and

(BI) 1.1.3.22 confirming that, if applicable, dosage instructions for active substances or preparations are available on board (BWM Convention 04/18, regulation D-3).

(BI) 1.1. 4 For the control and management of ships' ballast water and sediments the completion of the initial survey should consist of:

(BI) 1.1.4.1 after a satisfactory survey, the International Ballast Water Management Certificate should be issued.

(BA) 1.2 **Annual surveys** – see part "General" section 2.5

[1] Only applicable to the BWMS type-approved in accordance with resolution MEPC.125(53) or MEPC.174(58).

[2] Only applicable to the BWMS type-approved in accordance with resolution MEPC.279(70) or BWMS Code.

[3] Only applicable to the BWMS type-approved in accordance with resolution MEPC.279(70) or BWMS Code.

[4] Refer to BWM.2/Circ.70/Rev.1 on *2020 Guidance for the commissioning testing of ballast water management systems* .

(BA) 1.2.1 For the control and management of ships' ballast water and sediments the examination of current certificates and other records should consist of:

(BA) 1.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate or Passenger Ship Safety Certificate;

(BA) 1.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(BA) 1.2.1.3 checking, where appropriate, the validity of the International Oil Pollution Prevention Certificate, International Sewage Pollution Prevention Certificate, and International Air Pollution Prevention Certificate;

(BA) 1.2.1.4 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(BA) 1.2.1.5 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(BA) 1.2.1.6 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(BA) 1.2.1.7 checking the validity of the International Ship Security Certificate;

(BA) 1.2.1.8 checking, when appropriate, the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(BA) 1.2.1.9 checking the certificates of class, if the ship is classed with a classification society;

(BA) 1.2.1.10 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(BA) 1.2.1.11 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(BA) 1.2.1.12 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(BA) 1.2.1.13 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(BA) 1.2.1.14 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(BA) 1.2.1.15 checking that the master, officers and ratings are certificated as required by the STCW Convention;

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[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(BA) 1.2.1.16 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the certificate;

(BA) 1.2.1.17 confirming that the ballast water management plan is on board (BWM Convention 04, regulation B-1);

(BA) 1.2.1.18 checking whether the appropriate entries have been made in the ballast record book (BWM Convention 04, regulation B-2);

(BA) 1.2.1.19 sighting the certificate(s) for type approval for the BWMS(s) (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable);

(BA) 1.2.1.20 sighting the records of the recording device, if fitted (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable);

(BA) 1.2.1.21 confirming that a calibration check has been performed in accordance with the approved manual and the relevant resolution;[1]

(BA) 1.2.1.22 sighting, if applicable, the statement of compliance for a prototype ballast water treatment technology (BWM Convention 04, regulation D-4); and

(BA) 1.2.1.23 verifying, if applicable, that there is evidence that the prototype ballast water treatment technology is continuing to be operated in accordance with the approved programme (BWM Convention 04, regulation D-4).

(BA) 1.2.2 For the control and management of ships' ballast water and sediments, the annual survey should consist of:

(BA) 1.2.2.1 the provisions of (BAd) 1.5 where applicable; otherwise

(BA) 1.2.2.2 examining externally the ballast water treatment system and confirming, as far as practicable, its satisfactory operation (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable);

(BA) 1.2.2.3 confirming that, if applicable, active substances in accordance with the manufacturer's recommendations are provided on board (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable);

(BA) 1.2.2.4 confirming that, if applicable, dosage instructions for active substances or preparations are available on board (BWM Convention 04/18, regulation D-3 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable); and

(BA) 1.2.2.5 where applicable examining externally the prototype ballast water treatment technology and confirming, as far as practicable, its satisfactory operation (BWM Convention 04, regulation D-4).

[1] Applicable to the BWMS type-approved in accordance with resolutions MEPC.125(53), MEPC.174(58), MEPC.279(70) or BWMS Code.

(BA) 1.2.3 For the control and management of ships' ballast water and sediments, the completion of the annual survey should consist of:

(BA) 1.2.3.1 after a satisfactory survey, the International Ballast Water Management Certificate should be endorsed; and

(BA) 1.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General" section 4.8.

(BIn) **1.3 Intermediate surveys** – see part "General" section 2.4

(BIn) 1.3.1 For the control and management of ships' ballast water and sediments the examination of current certificates and other records should consist of:

(BIn) 1.3.1.1 the provisions of (BA) 1.2.1.

(BIn) 1.3.2 For the control and management of ships' ballast water and sediments the intermediate survey should consist of:

(BIn) 1.3.2.1 the provisions of (BA) 1.2.2; and

(BIn) 1.3.2.2 examining the BWMS for obvious defects, deterioration or damage including examining associated pumps, piping and fittings for wear and corrosion (BWM Convention 04/18, regulations D-3 and D-4 / Note: this survey requirement is relevant only when the performance standard according to regulation D-2 is applicable).

(BIn) 1.3.3 For the control and management of ships' ballast water and sediments the completion of the intermediate survey should consist of:

(BIn) 1.3.3.1 after a satisfactory survey, the International Ballast Water Management Certificate should be endorsed; and

(BIn) 1.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see part "General" section 4.8.

(BR) **1.4 Renewal surveys** – see part "General" section 2.3

(BR) 1.4.1 For the control and management of ships' ballast water and sediments the examination of current certificates and other records should consist of:

(BR) 1.4.1.1 the provisions of (BA) 1.2.1, except for the validity of the International Ballast Water Management Certificate.

(BR) 1.4.2 For the control and management of ships' ballast water and sediments the renewal survey should consist of:

(BR) 1.4.2.1 the provisions of (BIn) 1.3.2; and

(BR) 1.4.2.2 if applicable, confirming, if necessary by simulated test or equivalent, the satisfactory operation of the prototype ballast water treatment technology (BWM Convention 04, regulation. D-4).

(BR) 1.4.3 For the control and management of ships' ballast water and sediments the completion of renewal survey should consist of:

(BR) 1.4.3.1 after a satisfactory survey, the International Ballast Water Management Certificate should be issued.

(BAd) **1.5 Additional surveys** – see part "General" section 2.7.

(BAd) 1.5.1 For the control and management of ships' ballast water and sediments, the additional survey should consist of:

(BAd) 1.5.1.1 the provisions of (BI) 1.1.1.3, (BI) 1.1.1.4, (BI) 1.1.2.3, (BI)1.1.2.4, (BI) 1.1.2.5 and (BI)1.1.3; and

(BAd) 1.5.2 For the control and management of ships' ballast water and sediments the completion of the additional survey should consist of:

(BAd) 1.5.2.1 after a satisfactory survey, the International Ballast Water Management Certificate should be issued.

Annex 5

SURVEY GUIDELINES UNDER MANDATORY CODES

(D) **1** **GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK AND THE CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK**

(DI) **1.1** **Initial surveys** – see part "General" section 4.1

(DI) 1.1.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of plans and designs of the structure, equipment, fittings, arrangements and materials should consist of:

(DI) 1.1.1.1 determining the products that it is intended that the ship will be permitted to carry and noting the corresponding minimum special requirements (IBC Code 12 ch.17) and any other special requirements (IBC Code 83/90/00/04/19 ch.15);

(DI) 1.1.1.2 examining the plans for the ship type, location of the cargo tanks, cargo containment, materials of construction, cargo temperature control, cargo tank vent systems, continuous monitoring of the concentration of flammable vapours, environmental control, electrical installations, fire protection and fire extinction, instrumentation and the provision, specification and stowage of the equipment for personnel protection (IBC Code 83/90/00 chs.2, 4, 6, 7, 8, 9, 10, 11, 13 and 14);

(DI) 1.1.1.3 examining the plans for the freeboard and stability, discharges below the bulkhead deck and survival capability (IBC Code 83/90/00/14 ch.2);

(DI) 1.1.1.4 examining the plans for the ship arrangements (IBC Code 83/90/00 ch.3);

(DI) 1.1.1.5 examining the plans for the cargo transfer (IBC Code 83/90/00 ch.5);

(DI) 1.1.1.6 examining the plans for the mechanical ventilation in the cargo area (IBC Code 83/90/00 ch.12);

(DI) 1.1.1.7 the provisions of (NI) 2.1.1 in Annex 3;

(DI) 1.1.1.8 examining, where applicable, the stability instrument (IBC Code 83/90/00/14 ch.2); and

(DI) 1.1.1.9 examining, when a dispensation from carriage of a stability instrument applies, the alternative means of verification for intact and damage stability (IBC Code 83/90/00/14 ch.2).

(DI) 1.1.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, the survey during construction and after installation of the structure, equipment, fittings, arrangements and materials should consist of:

(DI) 1.1.2.1 confirming that tanks containing cargo or residues of cargo are suitably segregated from accommodation, service and machinery spaces and from drinking water and stores for human consumption, that cargo piping does not pass through any accommodation, service or machinery space other than cargo pump-rooms or pump-rooms and that cargoes are not to be carried in either the fore or the aft peak tank (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.2 examining the air intakes and openings into the accommodation, service and machinery spaces in relation to the cargo piping and vent systems and their entrances, air inlets and openings in relation to the cargo area (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.3 examining the arrangements of the cargo pump-rooms (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.4 examining the accesses to spaces in the cargo area (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.5 examining the bilge and ballast arrangements and confirming that pumps and pipelines are identified (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.6 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the air inlets and entrances to the accommodation, machinery and service spaces, the electrical equipment, fire-fighting arrangements and means of communication and testing the remote shut down for the cargo pumps (IBC Code 83/90/00 ch.3);

(DI) 1.1.2.7 confirming that the cargo tank types are arranged and installed in accordance with the approved plans, internally examining the cargo tanks, water ballast tanks and other spaces in the cargo area and pressure testing the boundaries (IBC Code 83/90/00 ch.4);

(DI) 1.1.2.8 examining the cargo transfer arrangements and confirming that any hoses are suitable for their intended purpose and, where appropriate, type-approved or marked with date of testing (IBC Code 83/90/00 ch.5);

(DI) 1.1.2.9 examining and testing any cargo heating and cooling systems (IBC Code 83/90/00 ch.7);

(DI) 1.1.2.10 confirming that the cargo tank vent systems have been installed in accordance with the approved plans (IBC Code 83/90/00 ch.8);

(DI) 1.1.2.11 confirming that high-level alarms, or overflow control systems or spill valves or other equivalent means provided to control possible liquid rising in the venting system, are operating satisfactorily (IBC Code 83/90/00 ch.8);

(DI) 1.1.2.12 confirming that suitable provision is made for drainage of vent lines and that no shut-off valves or other means of stoppage, including spectacle or blank flanges, are fitted either to the individual vents or to the header, if the vents are combined or either above or below pressure/vacuum relief valves with closed vent systems (IBC Code 83/90/00 ch.8);

(DI) 1.1.2.13 confirming that suitable provisions are made for primary and secondary means (or alternative measures) for controlled tank venting (IBC Code 83/90/00 ch.8);

(DI) 1.1.2.14 examining the location of the vent outlets in respect of the height above the weather deck or the fore and aft gangway, from the nearest air intakes or openings to accommodation, service and machinery spaces and ignition sources and confirming that any high velocity vents are of the approved type (IBC Code 83/90/00 ch.8);

(DI) 1.1.2.15 examining the cross-sectional area and height of the vent outlets for cargo tank purging with inert gas, as applicable (IBC Code 83/90/00/14 ch.8);

(DI) 1.1.2.16 examining the arrangements for environmental control, including the means of storing or generating and drying an inert gas (IBC Code 83/90/00 ch.9);

(DI) 1.1.2.17 examining the electrical installations and confirming that, when appropriate, special materials have been used and that the electrical equipment installed in hazardous locations, as permitted, is certified by a recognized authority for the cargoes to be carried (IBC Code 83/90/00 ch.10);

(DI) 1.1.2.18 confirming that independent cargo tanks are electrically bonded to the hull and that all gasketed cargo pipe joints and hose connections are electrically bonded (IBC Code 83/90/00 ch.10);

(DI) 1.1.2.19 examining the arrangements for the fire protection and fire extinction (IBC Code 83/90/00 ch.11);

(DI) 1.1.2.20 examining the fixed fire-fighting system for the cargo pump-room and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (IBC Code 83/90/00 ch.11);

(DI) 1.1.2.21 checking the deck foam system for the cargo area, including the supplies of foam concentrate, and testing that the minimum number of jets of water at the required pressure in the fire main is obtained (see (EI) 1.1.3.1 in Annex 1) when the system is in operation (IBC Code 83/90/00 ch.11);

(DI) 1.1.2.22 examining the system for continuous monitoring of the concentration of flammable vapours and confirming that the installation tests have been satisfactorily completed (IBC Code 83/90/00 ch.11);

(DI) 1.1.2.23 confirming that suitable portable fire-extinguishing equipment for the cargoes to be carried is provided in the cargo area (IBC Code 83/90/00 ch.11);

(DI) 1.1.2.24 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces in the cargo area normally entered during cargo handling operations (IBC Code 83/90/00 ch.12) and checking in particular that:

(DI) 1.1.2.24.1 it may be controlled from outside the space;

(DI) 1.1.2.24.2 warning notices concerning its use have been posted;

(DI) 1.1.2.24.3 it is of the extraction type, with extraction from below the floor plates, unless the space houses electrical motors driving cargo pumps when it should be of the positive pressure type;

(DI) 1.1.2.24.4 the ducting does not pass through accommodation, machinery and service spaces and that the exhaust ducts are clear of the ventilation inlets and openings to such spaces;

(DI) 1.1.2.24.5 the electric motors driving ventilation fans are positioned outside the ventilation ducts and the ventilation fans and the ducts, in way of the fans only, are of non-sparking construction in hazardous locations;

(DI) 1.1.2.25 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces normally entered, other than those covered by (DI) 1.1.2.24 (IBC Code 83/90/00 ch.12);

(DI) 1.1.2.26 confirming that double bottoms, cofferdams, duct keels, pipe tunnels, hold spaces and other spaces where cargo may accumulate are capable of being efficiently ventilated to ensure a safe environment when entry into the space is necessary and that, when appropriate, permanent ducting is provided and any ventilation fans comply with (DI) 1.1.2.24.5 (IBC Code 83/90/00 ch.12);

(DI) 1.1.2.27 examining the intrinsically safe systems and circuits used for measurement, monitoring, control and communication purposes in all hazardous locations (IBC Code 83/90/00 ch.13);

(DI) 1.1.2.28 checking the provision of equipment for personnel protection (IBC Code 83/90/00 ch.14) and in particular that:

(DI) 1.1.2.28.1 suitable protective clothing is available for the crew engaged in loading and discharging operations and that suitable storage is provided;

(DI) 1.1.2.28.2 the required safety equipment and associated breathing apparatus and air supplies and, when appropriate, emergency-escape respiratory and eye protection, are provided and are properly stowed;

(DI) 1.1.2.28.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment are provided;

(DI) 1.1.2.28.4 arrangements have been made for the antidotes for the cargoes actually carried to be on board;

(DI) 1.1.2.28.5 decontamination arrangements and eyewashes are operational;

(DI) 1.1.2.28.6 the required gas detection instruments are on board and that arrangements have been made for the supply of the appropriate vapour detection tubes;

(DI) 1.1.2.28.7 the stowage for cargo samples is satisfactory;

(DI) 1.1.2.29 the provisions of (NI) 2.1.2 in annex 3; and

(DI) 1.1.2.30 confirming that sampling points or detector heads are located in suitable positions in order that potentially dangerous leakages are readily detected (IBC Code 07 ch.11.1.4, BCH Code ch.III, E 3.13).

(DI) 1.1.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, the check that all the required documentation has been placed on board the ship should consist of:

(DI) 1.1.3.1 confirming that a loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner, is available on board (IBC Code 83/90/00/14 ch.2);

(DI) 1.1.3.2 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IBC Code 83/90/00 ch.2);

(DI) 1.1.3.3 confirming that a table giving the filling ratios for the cargo tanks at various densities has been provided (IBC Code 83/90/00/19 ch.16);

(DI) 1.1.3.4 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, or the equivalent national regulations, has been provided (IBC Code 83/90/00/19 ch.16);

(DI) 1.1.3.5 confirming that information relating to the chemical and physical properties of the products to be carried has been provided and that provision has been made for the measures to be taken in an accident (IBC Code 83/90/00/19 ch.16);

(DI) 1.1.3.6 confirming that a manual covering procedures for cargo transfer, tank cleaning, gas freeing, ballasting, etc. has been provided (IBC Code 83/90/00/19 ch.16);

(DI) 1.1.3.7 the provisions of (NI) 2.1.3 in annex 3;

(DI) 1.1.3.8 confirming that compatibility information as to material of construction, protective linings and coating is provided on board (IBC Code 83/04 ch.6);

(DI) 1.1.3.9 confirming, where applicable, that the stability instrument has been approved and is operating satisfactorily (IBC Code 83/90/00/14 ch.2); and

(DI) 1.1.3.10 confirming, when a dispensation from carriage of a stability instrument applies, that the alternative means of verification for intact and damage stability is recorded on the Certificate of Fitness and is being applied effectively (IBC Code 83/90/00/14 ch.2).

(DI) 1.1.4 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the initial survey should consist of:

(DI) 1.1.4.1 after a satisfactory survey issuing the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.

(DA) **1.2** **Annual surveys** – see part "General" section 4.2

(DA) 1.2.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:

(DA) 1.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(DA) 1.2.1.2 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(DA) 1.2.1.3 checking the validity of the International Ship Security Certificate;

(DA) 1.2.1.4 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(DA) 1.2.1.5 checking the validity of the International Oil Pollution Prevention Certificate;

(DA) 1.2.1.6 checking the certificates of class, if the ship is classed with a classification society;

(DA) 1.2.1.7 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;

(DA) 1.2.1.8 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(DA) 1.2.1.9 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(DA) 1.2.1.10 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(DA) 1.2.1.11 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5)[1];

(DA) 1.2.1.12 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(DA) 1.2.1.13 checking, when appropriate, the validity of the International Ballast

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

Water Management Certificate;

(DA) 1.2.1.14 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(DA) 1.2.1.15 checking that the master, officers and ratings are certificated as required by the STCW Convention;

(DA) 1.2.1.16 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(DA) 1.2.1.17 confirming that the loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner, is available on board (IBC Code 83/90/00/14 ch.2) (BCH Code 85/90/00/14 para.2.2.1);

(DA) 1.2.1.18 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IBC Code 83/90/00 ch.2) (No BCH Code 85/90/00 reference);

(DA) 1.2.1.19 confirming that a table giving the filling ratios for the cargo tanks at various densities has been provided (IBC Code 83/90/00 ch.16) (BCH Code 85/90/00/19 ch.III, part G);

(DA) 1.2.1.20 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk or the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, or the equivalent national regulations, has been provided (IBC Code 83/90/00/19 ch.16) (BCH Code 85/90/00/19 ch.V);

(DA) 1.2.1.21 confirming that information relating to the chemical and physical properties of the products to be carried has been provided, and that provision has been made for the measures to be taken in an accident (IBC Code 83/90/00/19 ch.16) (BCH Code 85/90/00/19 ch.V);

(DA) 1.2.1.22 confirming that a manual covering procedures for cargo transfer, tank cleaning, gas freeing, ballasting, etc. has been provided (IBC Code 83/90/00/19 ch.16) (BCH Code 85/90/00/19 ch.V);

(DA) 1.2.1.23 confirming that the Procedures and Arrangements Manual is on board (IBC Code 83/90/00 ch.16A) (BCH Code 85/90/00 ch.VA);

(DA) 1.2.1.24 confirming that the shipboard marine pollution emergency plan is on board (MARPOL 04 Annex II, reg.17);

(DA) 1.2.1.25 confirming that the Cargo Record Book or as an electronic record book[1] is on board and being correctly used (MARPOL 04/19 Annex II, reg.15);

[1] Refer to the *Guidelines for the use of electronic record books under MARPOL* (resolution MEPC.312(74)).

(DA) 1.2.1.26 confirming that compatibility information as to material of construction, protective linings and coating is provided on board (IBC Code 83/04 ch.6) (BCH Code 85/90/00 ch.II, part G);

(DA) 1.2.1.27 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable.

(DA) 1.2.1.28 confirming, where applicable, that the approved stability instrument is available on board and operating satisfactorily (IBC Code 83/90/00/14 ch.2); and

(DA) 1.2.1.29 confirming, when a dispensation from carriage of a stability instrument applies, that the alternative means of verification for intact and damage stability recorded on the Certificate of Fitness is available on board and being applied effectively (IBC Code 83/90/00/14 ch.2).

(DA) 1.2.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the annual survey of the structure, equipment, fittings, arrangements and materials should consist of:

(DA) 1.2.2.1 confirming that wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends facing the cargo area are in a satisfactory condition (IBC Code 83/90/00 ch.3) (BCH Code 85/90/00 ch.IIC);

(DA) 1.2.2.2 confirming that potential sources of ignition in or near the cargo pump-room are eliminated, such as loose gear and combustible materials, that there are no signs of undue leakage and that access ladders are in a satisfactory condition (IBC Code 83/90/00 ch.3) (BCH Code 85/90/00 ch.IIC);

(DA) 1.2.2.3 confirming that removable pipe lengths or other approved equipment necessary for cargo separation are available in the pump-room and are in a satisfactory condition (IBC Code 83/90/00 ch.3) (BCH Code 85/90/00 ch.IIC);

(DA) 1.2.2.4 examining all pump-room bulkheads for signs of cargo leakage or fractures and, in particular, the sealing arrangements of all penetrations of pump-room bulkheads (IBC Code 83/90/00 ch.3)
(BCH Code 85/90/00 ch.IIC);

(DA) 1.2.2.5 confirming that the remote operation of the cargo pump bilge system is satisfactory (IBC Code 83/90/00 ch.3) (BCH Code 85/90 ch.IIC);

(DA) 1.2.2.6 examining the bilge and ballast arrangements and confirming that pumps and pipelines are identified (IBC Code 83/90/00 ch.3) (No BCH Code 85/90/00 reference);

(DA) 1.2.2.7 confirming, when applicable, that the bow or stern loading and unloading arrangements are in order and testing the means of communication and the remote shut down for the cargo pumps (IBC Code 83/90/00 ch.3) (No BCH Code 85/90/00 reference);

(DA) 1.2.2.8 examining the cargo transfer arrangements and confirming that any hoses are suitable for their intended purpose and, where appropriate, type-approved or marked with date of testing (IBC Code 83/90/00 ch.5) (BCH Code 85/90/00 ch.IID);

(DA) 1.2.2.9 examining, when applicable, the cargo heating or cooling systems, including any sampling arrangements, and confirming that the means for measuring the temperature and associated alarms are operating satisfactorily (IBC Code 83/90/00 ch.7) (BCH Code 85/90/00 ch.IIF);

(DA) 1.2.2.10 examining, as far as practicable, the cargo tank vent system, including the pressure/vacuum valves and secondary means to prevent over- or under-pressure and devices to prevent the passage of flame, and the arrangements of cargo tank purging with inert gas, as applicable (IBC Code 83/90/99/00/14 ch.8,) (BCH Code 85/90/99/00 ch.IIE);

(DA) 1.2.2.11 examining the gauging devices, high-level alarms and valves associated with overflow control (IBC Code 83/90/00 ch.8) (BCH Code 85/90/00 ch.IIE);

(DA) 1.2.2.12 confirming that arrangements for sufficient gas to be carried or generated to compensate for normal losses, and that the means provided for monitoring ullage spaces, are satisfactory (IBC Code 83/90/00 ch.9) (BCH Code 85/90/00 ch.IIH);

(DA) 1.2.2.13 confirming that arrangements are made for sufficient medium to be carried where drying agents are used on air inlets to cargo tanks (IBC Code 83/90/00 ch.9) (BCH Code 85/90/00 ch.IIH);

(DA) 1.2.2.14 confirming that all electrical equipment in dangerous zones is suitable for such locations, is in satisfactory condition and has been properly maintained (IBC Code 83/90/00 ch.10) (BCH Code 85/90/00 ch.IIIB);

(DA) 1.2.2.15 examining the fixed fire-fighting system for the cargo pump-room and the deck foam system for the cargo area and confirming that their means of operation are clearly marked (IBC Code 83/90/00 ch.11) (BCH Code 85/90/00 ch.IIIE);

(DA) 1.2.2.16 confirming that the condition of the portable fire-extinguishing equipment for the cargoes to be carried in the cargo area is satisfactory (IBC Code 83/90/00 ch.11) (BCH Code 85/90/00 ch.IIIE);

(DA) 1.2.2.17 confirming that the system for continuous monitoring of the concentration of flammable vapours is satisfactory (IBC Code 83/90/00 ch.11);

(DA) 1.2.2.18 examining, as far as practicable, and confirming the satisfactory operation of, the arrangements for the ventilation of spaces normally entered during cargo handling operations and other spaces in the cargo area (IBC Code 83/90/00 ch.12) (BCH Code 85/90/00 ch.IIIA);

(DA) 1.2.2.19 confirming, as far as practicable, that the intrinsically safe systems and circuits used for measurement, monitoring, control and communication purposes in all hazardous locations are being properly maintained (IBC Code 83/90/00 ch.13) (BCH Code 85/90/00 ch.IIIC);

(DA) 1.2.2.20 examining the equipment for personnel protection (IBC Code 83/90/00 ch.14) (BCH Code 85/90/00 ch.IIIF) and in particular that:

(DA) 1.2.2.20.1 the protective clothing for crew engaged in loading and discharging operations and its stowage is in a satisfactory condition;

(DA) 1.2.2.20.2 the required safety equipment and associated breathing apparatus and associated air supplies and, when appropriate, emergency-escape respiratory and eye protection, are in a satisfactory condition and are properly stowed;

(DA) 1.2.2.20.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment are in a satisfactory condition;

(DA) 1.2.2.20.4 arrangements have been made for the antidotes for the cargoes actually carried to be on board;

(DA) 1.2.2.20.5 decontamination arrangements and eyewashes are operational;

(DA) 1.2.2.20.6 the required gas detection instruments are on board and arrangements have been made for the supply of the appropriate vapour detection tubes;

(DA) 1.2.2.20.7 the arrangements for the stowage of cargo samples are satisfactory;

(DA) 1.2.2.21 the provisions of (NA) 2.2.2 in annex 3; and

(DA) 1.2.2.22 confirming that sampling points or detector heads are located in suitable positions in order that potentially dangerous leakages are readily detected (IBC Code 07 ch.11.1.4) (BCH Code ch.IIIE 3.13).

(DA) 1.2.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the annual survey should consist of:

(DA) 1.2.3.1 after a satisfactory survey, endorsing the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk; and

(DA) 1.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General" section 4.8.

(DIn) **1.3** **Intermediate surveys** – see part "General", section 4.3

(DIn) 1.3.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:

(DIn) 1.3.1.1 the provisions of (DA) 1.2.1.

(DIn) 1.3.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the intermediate survey of the structure, equipment, fittings, arrangements and materials should consist of:

(DIn) 1.3.2.1 the provisions of (DA) 1.2.2;

(DIn) 1.3.2.2 examining vent line drainage arrangements (IBC Code 83/90/00 ch.8) (BCH Code 85/90/00 ch.IIE);

(DIn) 1.3.2.3 confirming, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull (IBC Code 83/90/00 ch.10) (BCH Code 85/90/00 ch.IIIB);

(DIn) 1.3.2.4 generally examining the electrical equipment and cables in dangerous zones such as cargo pump-rooms and areas adjacent to cargo tanks to check for defective equipment, fixtures and wiring; the insulation resistance of the circuits should be tested and in cases where a proper record of testing is maintained, consideration should be given to accepting recent readings (IBC Code 83/90/00 ch.10) (BCH Code 85/90/00 ch.IIIB);

(DIn) 1.3.2.5 confirming that spares are provided for cargo area mechanical ventilation fans (IBC Code 83/90/00 ch.12) (BCH Code 85/90/00 ch.IIIA); and

(DIn) 1.3.2.6 the provisions of (NIn) 2.3.2 in annex 3.

(DIn) 1.3.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the intermediate survey should consist of:

(DIn) 1.3.3.1 after a satisfactory survey, endorsing the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk; and

(DIn) 1.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General", section 4.8.

(DR) **1.4** **Renewal surveys** – see part "General" section 4.4

(DR) 1.4.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:

(DR) 1.4.1.1 the provisions of (DA) 1.2.1, except the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.

(DR) 1.4.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the renewal survey of the structure, equipment, fittings, arrangements and materials should consist of:

(DR) 1.4.2.1 the provisions of (DIn) 1.3.3; and

(DR) 1.4.2.2 the provisions of (NR) 2.4.2 in annex 3.

(DR) 1.4.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the renewal survey should consist of:

(DR) 1.4.3.1 after a satisfactory survey, issuing the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.

(G) 2 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF LIQUEFIED GASES IN BULK

(GI) **2.1** **Initial surveys** – see part "General", section 4.1.

(GI) 2.1.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of plans and designs of the structure, equipment, fittings, arrangements and materials should consist of:

(GI) 2.1.1.1 determining the products that it is intended that the ship will be permitted to carry and noting the corresponding minimum special requirements (IGC Code 83/90/00/14 ch.19);

(GI) 2.1.1.2 examining the plans for the ship type, cargo containment, control of vapour space within the cargo tanks, vapour detection, gauging, personnel protection, filling limits for cargo tanks and other special requirements (IGC Code 83/90/00/14 chs.2, 4, 6, 13, 14, 15, and 17);

(GI) 2.1.1.3 examining the plans for the freeboard, and survival capability (IGC Code 83/90/00/14 ch.2; IS Code chs.1, 2 and 3);

(GI) 2.1.1.4 examining the plans for the ship arrangements (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.1.5 examining, where applicable, the approved documentation for the alternative design and arrangements for the segregation of the cargo area (IGC Code 83/90/00/14 ch.3; SOLAS 74/00/06 reg.II-2/17);

(GI) 2.1.1.6 examining the plans for the process pressure vessels and liquid, vapour and pressure piping systems (IGC Code 83/90/00/14 chs.5 and 6);

(GI) 2.1.1.7 examining the plans for the cargo pressure/temperature control (IGC Code 83/90/00/14 ch.7);

(GI) 2.1.1.8 examining the plans for the cargo tank ventilation systems (IGC Code 83/90/00/14 ch.8);

(GI) 2.1.1.9 examining the plans for the cargo containment system atmosphere control (IGC Code 83/90/00 ch.9);

(GI) 2.1.1.10 examining the plans for the electrical installations (IGC Code 83/90/00/14 ch.10);

(GI) 2.1.1.11 examining the plans for fire protection and fire extinction equipment (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.1.12 examining the plans for the artificial ventilation in the cargo area (IGC Code 83/90/00/14 ch.12);

(GI) 2.1.1.13 examining the plans for the instrumentation and automation systems (IGC Code 83/90/00/14 ch.13);

(GI) 2.1.1.14 examining, when applicable, the plans for the use of cargo as fuel (IGC Code 83/90/00/14 ch.16);

(GI) 2.1.1.15 examining, where applicable, the stability instrument (IGC Code 83/90/00/14 ch.2); and

(GI) 2.1.1.16 examining, when a dispensation from carriage of a stability instrument applies, the alternative means of verification for intact and damage stability (IGC Code 83/90/00/14 ch.2).

(GI) 2.1.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the survey during construction and after installation of the structure, equipment, fittings, arrangements and materials should consist of:

(GI) 2.1.2.1 confirming that the segregation in the cargo area and the arrangement of the accommodation, service and machinery spaces are in accordance with the approved plans (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.2 examining, where applicable, the alternative design and arrangements for the segregation of the cargo area, in accordance with the test and inspection requirements, if any, specified in the approved documentation (IGC Code 83/90/00/14 ch.3; SOLAS 74/00/06 reg.II-2/17);

(GI) 2.1.2.3 examining the arrangements of the cargo machinery spaces and turret compartments, including their escape routes (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.4 confirming that the manually operated ESD (emergency shutdown) system together with the automatic shutdown of the cargo pumps and compressors are satisfactory (IGC Code 83/90/00/14 chs.5 and 18);

(GI) 2.1.2.5 examining the arrangement of the cargo control room (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.6 examining the accesses to spaces in the cargo area (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.7 confirming the arrangements for the air locks (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.8 examining the bilge, ballast and oil fuel arrangements (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.9 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the air inlets and entrances to the accommodation, machinery and service spaces, the electrical equipment, fire-fighting arrangements and means of communication between the cargo control room and the shore location (IGC Code 83/90/00/14 ch.3);

(GI) 2.1.2.10 confirming that the cargo tanks are arranged and installed in accordance with the approved plans, internally examining the cargo tanks, water ballast tanks and other spaces in the cargo area, ensuring that the appropriate non-destructive and pressure testing are carried out (IGC Code 83/90/00/14 ch.4);

(GI) 2.1.2.11 for containment systems with glued secondary barriers, confirming that a tightness test has been carried out in accordance with the approved procedures of the system manufacturer before and after the initial cool down; where the designer's threshold values are exceeded, confirming that an investigation and additional testing, such as, thermographic or acoustic emission testing, has been carried out (IGC Code 83/90/00/14 ch.4);

(GI) 2.1.2.12 examining during the initial cool down, loading and discharging of the first cargo, the overall performance of the cargo containment system and confirming that the system is in compliance with the design parameters; for vessels carrying liquefied natural gas, the examination includes witnessing the satisfactory operation of the following systems, if fitted:

(GI) 2.1.2.12.1 gas detection system;

(GI) 2.1.2.12.2 cargo control and monitoring systems such as level gauging equipment, temperature sensors, pressure gauges, cargo pumps, compressors, and proper control of cargo heat exchanges, if operating;

(GI) 2.1.2.12.3 nitrogen generating plant and/or inert gas generator;

(GI) 2.1.2.12.4 nitrogen pressure control systems for interbarrier, insulation and other annular spaces;

(GI) 2.1.2.12.5 re-liquefaction plant;

(GI) 2.1.2.12.6 equipment fitted for the burning of cargo vapours, such as boilers, multi-fuel engines or gas combustion units;

(GI) 2.1.2.12.7 cofferdam heating systems;

(GI) 2.1.2.12.8 on-deck cargo piping systems including expansion and supporting arrangements;

(GI) 2.1.2.12.9 high-level alarms, by witnessing topping-off process for cargo tanks (IGC Code 83/90/00/14 ch.13);

(GI) 2.1.2.13 examining the cargo containment system for cold spots during, or immediately following, the first loaded voyage (IGC Code 83/90/00/14 ch.4);

(GI) 2.1.2.14 examining the cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements, water curtain protection as appropriate, and carrying out a leak detection test (IGC Code 83/90/00/14 ch.5);

(GI) 2.1.2.15 confirming that the cargo system valving arrangements are in accordance with the approved plans (IGC Code 83/90/00/14 ch.5);

(GI) 2.1.2.16 confirming that any liquid and vapour hoses are suitable for their intended purpose and, where appropriate, type-approved or marked with date of testing (IGC Code 83/90/00/14 ch.5);

(GI) 2.1.2.17 examining the arrangements for the cargo pressure/temperature control including, when fitted, the thermal oxidation systems or any refrigeration system and confirming that any associated safety measures and alarms are satisfactory (IGC Code 83/90/00/14 ch.7);

(GI) 2.1.2.18 confirming that the cargo tank vent systems, including the pressure relief systems and vacuum protection systems, have been installed in accordance with the approved plans, and that the PRVs are type-approved or marked with date of testing (IGC Code 83/90/00/14 ch.8);

(GI) 2.1.2.19 examining the arrangements for the cargo containment system atmosphere control and environmental control of spaces surrounding type C independent tanks, including the means of storing or generating and drying an inert gas (IGC Code 83/90/00/14 ch.9);

(GI) 2.1.2.20 examining the electrical installations with particular reference to the certified safe type equipment fitted in gas-dangerous spaces and zones (IGC Code 83/90/00/14 ch.10);

(GI) 2.1.2.21 examining the arrangements for the fire protection and fire extinction (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.2.22 examining the fixed fire-fighting system for the enclosed cargo machinery spaces and the enclosed cargo motor room, and confirming that the installation tests have been satisfactorily completed and that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.2.23 examining the fire water main with particular reference to the provision of hydrants and isolation arrangements, checking that the two jets of water reach all areas of the cargo and containment area, at the required pressure and testing the remote means of starting one main fire pump (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.2.24 examining and testing the water spray system for cooling, fire protection and crew protection and confirming that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.2.25 examining and testing the dry chemical powder fire-extinguishing system for the cargo area, seeing that the fixed piping has been properly installed and has been proved clear and confirming that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

GI) 2.1.2.26 examining the appropriate fire-extinguishing system for the enclosed cargo machinery spaces for ships that are dedicated to the carriage of a restricted number of cargoes and the internal water spray system for the turret compartments, and confirming that the installation tests have been satisfactorily completed and that their means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GI) 2.1.2.27 confirming the provision and examining the disposition of the fire-fighters' outfits including their self-contained compressed air breathing apparatus, and the provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (IGC Code 83/90/00/14 ch.11) (SOLAS 74/00/12 regs.II-2/10.10;
FSS Code ch.3);

(GI) 2.1.2.28 examining, and confirming the satisfactory operation of, the arrangements for the artificial ventilation of spaces in the cargo area normally entered during cargo handling operations (IGC Code 83/90/00/14 ch.12) and checking in particular that:

(GI) 2.1.2.28.1 it may be controlled from outside the space;

(GI) 2.1.2.28.2 warning notices concerning its use have been posted;

(GI) 2.1.2.28.3 it is fixed and is of the negative pressure type, permitting extraction from either the upper or lower parts of the space or from both the upper and lower parts when appropriate, for cargo compressor and pump-rooms and for cargo control rooms when considered to be in hazardous areas;

(GI) 2.1.2.28.4 it is of the positive pressure type for spaces containing electric motors driving cargo compressors or pumps and other non-hazardous spaces within the cargo area, except those containing inert gas generators;

(GI) 2.1.2.28.5 exhaust ducts are clear of the ventilation inlets and openings to accommodation spaces, service spaces, control stations and other non-hazardous spaces;

(GI) 2.1.2.28.6 intakes are arranged to minimize the recycling or hazardous vapours;

(GI) 2.1.2.28.7 ducts from hazardous areas are not led through accommodation, service and machinery spaces and control stations, except when (GI) 2.1.2.36 applies;

(GI) 2.1.2.28.8 the electric motors driving ventilation fans are positioned outside the ventilation ducts when the carriage of flammable products is intended and the ventilation fans and the ducts, in way of the fans only, are of non-sparking construction in hazardous areas;

(GI) 2.1.2.29 examining, and confirming the satisfactory operation of, the arrangements for the artificial ventilation of spaces normally entered other than those covered by (GI) 2.1.2.28 (IGC Code 83/90/00/14 ch.12);

(GI) 2.1.2.30 examining, and testing as appropriate, the liquid level indicators, overflow control, pressure gauges, high pressure and, when applicable, low pressure alarms, and temperature indicating devices for the cargo tanks (IGC Code 83/90/00/14 ch.13);

(GI) 2.1.2.31 examining, and testing as appropriate, the permanently installed gas detection equipment (IGC Code 83/90/00/14 ch.13);

(GI) 2.1.2.32 examining, and testing as appropriate, the oxygen-deficiency monitoring equipment (IGC Code 14 ch.13);

(GI) 2.1.2.33 confirming that two sets of portable gas detection equipment suitable for the cargoes to be carried and a suitable instrument for measuring oxygen levels have been provided (IGC Code 83/90/00/14 ch.13);

(GI) 2.1.2.34 examining, as appropriate, the automation systems used to provide instrumented control, monitoring/alarm or safety functions (IGC Code 14 ch.13);

(GI) 2.1.2.35 checking the provision of equipment for personnel protection (IGC Code 83/90/00/14 ch.14) and in particular that:

(GI) 2.1.2.35.1 suitable protective equipment, including eye protection, is provided for protection of crew members engaged in normal cargo operations, and properly stowed;

(GI) 2.1.2.35.2 sufficient, but not less than three complete sets of safety equipment each permitting personnel to enter and work in a gas-filled space are provided and are properly stowed;

(GI) 2.1.2.35.3 an adequate supply of compressed air is provided and that the spare air bottle, air compressor and charging manifold are provided and properly stowed;

(GI) 2.1.2.35.4 a stretcher and the medical first-aid equipment, including oxygen resuscitation equipment, when available, for the products to be carried are provided;

(GI) 2.1.2.35.5 respiratory and eye protection suitable for emergency escape purposes are provided and properly stowed;

(GI) 2.1.2.35.6 decontamination arrangements and eyewashes are operational;

(GI) 2.1.2.36 examining, when applicable, the arrangements for the use of cargo as fuel and testing that the gas supply to the space containing gas consumers is cut off should the double-wall concentric pipes lose the inert gas pressure or the exhaust ventilation not be functioning correctly, and that the master gas fuel valve may be manually closed from within the space, and at least one remote location (IGC Code 83/90/00/14 ch.16).

(GI) 2.1.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the check that all the required documentation has been placed on board the ship should consist of:

(GI) 2.1.3.1 confirming that a loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner, is available on board (IGC Code 83/90/00/14 ch.2; IS Code chs.1, 2 and 3);

(GI) 2.1.3.2 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IGC Code 83/90/00/14 ch.2);

(GI) 2.1.3.3 confirming that, where applicable, the approved documentation for the alternative design and arrangements for the segregation of the cargo area is on board (IGC Code 83/90/00/14 ch.3; SOLAS 74/00/06 reg.II-2/17);

(GI) 2.1.3.4 confirming that, where applicable, the evaluation certificate*[1] for the adequacy of type C tank vent systems is provided (IGC Code 83/90/00/14 ch.8);

(GI) 2.1.3.5 confirming that the approved document for the maximum allowable loading limits together with PRVs setting pressures is on board (IGC Code 83/90/00/14 ch.15);

(GI) 2.1.3.6 confirming that necessary information for the safe carriage of the products to be carried has been provided (IGC Code 83/90/00/14 ch.18);

(GI) 2.1.3.7 confirming that the approved cargo operations manuals, including relevant procedures for ESD system and emergency isolating operations of PRVs, has been provided (IGC Code 14 ch.18);

(GI) 2.1.3.8 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, or the equivalent national regulations, has been provided (IGC Code 83/90/00/14 ch.18);

(GI) 2.1.3.9 confirming, where applicable, that the stability instrument has been approved and is operating satisfactorily (IGC Code 83/90/00/14 ch.2); and

(GI) 2.1.3.10 confirming, when a dispensation from carriage of a stability instrument applies, that the alternative means of verification for intact and damage stability is recorded on the Certificate of Fitness and is being applied effectively (IGC Code 83/90/00/14 ch.2).

(GI) 2.1.4 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the initial survey should consist of:

(GI) 2.1.4.1 after a satisfactory survey, issuing the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.

(GA) **2.2** **Annual surveys** – see part "General", section 4.2.

[1] Refer to the *Guidelines for the evaluation of the adequacy of type C tank vent systems* (resolution A.829(19))

(GA) 2.2.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:

(GA) 2.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;

(GA) 2.2.1.2 checking the validity of the Safety Management Certificate (SMC) and that a copy of the Document of Compliance (DOC) is on board;

(GA) 2.2.1.3 checking the validity of the International Ship Security Certificate;

(GA) 2.2.1.4 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;

(GA) 2.2.1.5 checking the validity of the International Oil Pollution Prevention Certificate;

(GA) 2.2.1.6 checking the certificates of class, if the ship is classed with a classification society;

(GA) 2.2.1.7 checking the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;

(GA) 2.2.1.8 checking, when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(GA) 2.2.1.9 checking, when appropriate, the validity of the International Air Pollution Prevention Certificate;

(GA) 2.2.1.10 confirming, when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs.6.4 and 6.5);

(GA) 2.2.1.11 confirming, when appropriate, that confirmation of compliance for the SEEMP part II is provided to and retained on board the ship (MARPOL Annex VI, reg. 5.4.5);[1]

(GA) 2.2.1.12 confirming, when appropriate, the validity of the Statements of Compliance related to fuel oil consumption reporting (MARPOL Annex VI, regs.6.6 and 6.7);

(GA) 2.2.1.13 checking, when appropriate, the validity of the International Ballast Water Management Certificate;

(GA) 2.2.1.14 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/00/12 reg.V/14) (SOLAS 74/88 reg.V/13(b));

(GA) 2.2.1.15 checking that the master, officers and ratings are certificated as required by the STCW Convention;

[1] Refer to the *Sample Format of Confirmation of Compliance, Early Submission of the SEEMP part II on the ship fuel oil consumption data collection plan and its timely verification pursuant to regulation 5.4.5 of MARPOL Annex VI* (MEPC.1/Circ.876).

(GA) 2.2.1.16 checking whether any new equipment has been fitted and, if so, confirming that it has been approved before installation and that any changes are reflected in the appropriate certificate;

(GA) 2.2.1.17 confirming that the loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner, is available on board (IGC Code 83/90/00/14 ch.2; IS Code chs.1, 2 and 3);

(GA) 2.2.1.18 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IGC Code 83/90/00/14 ch.2);

(GA) 2.2.1.19 confirming that, where applicable, the approved documentation for the alternative design and arrangements for the segregation of the cargo area is on board (IGC Code 83/90/00/14 ch.3; SOLAS 74/00/06 reg.II-2/17);

(GA) 2.2.1.20 confirming that, where applicable, the evaluation certificate[1] for the adequacy of type C tank vent systems is provided (IGC Code 83/90/00/14 ch.8);

(GA) 2.2.1.21 checking the logbook entries to confirm whether any changes were made in setting the pressure of PRVs or any emergency isolation action effected in the event of a failure of a cargo tank-installed PRV, and confirming that signs are posted in the cargo control room, if provided, and at each PRV (IGC 83/90/00/14 ch.8);

(GA) 2.2.1.22 confirming that the approved document for the maximum allowable loading limits together with PRVs setting pressures is on board (IGC Code 83/90/00/14 ch.15);

(GA) 2.2.1.23 confirming that necessary information for the safe carriage of the products to be carried has been provided (IGC Code 83/90/00/14 ch.18);

(GA) 2.2.1.24 confirming that the approved cargo operations manuals, including relevant procedures for ESD system and emergency isolating operations of PRVs, have been provided (IGC Code 14 ch.18);

(GA) 2.2.1.25 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, or the equivalent national regulations, has been provided (IGC Code 83/90/00/14 ch.18);

(GA) 2.2.1.26 confirming that there are records of the performance of the cargo containment system (IGC Code 83/90/00/14 ch.4);

(GA) 2.2.1.27 confirming the availability of the International Anti-fouling System Certificate (AFS 2001 annex 4 reg.2), when applicable;

[1] Refer to the *Guidelines for the evaluation of the adequacy of type C tank vent systems* (resolution A.829(19)).

(GA) 2.2.1.28 confirming, where applicable, the approved stability instrument is available on board and operating satisfactorily (IGC Code 83/90/00/14, ch.2); and

(GA) 2.2.1.29 confirming, when a dispensation from carriage of a stability instrument applies, that the alternative means of verification for intact and damage stability recorded on the Certificate of Fitness is available on board and being applied effectively (IGC Code 83/90/00/14, ch.2).

(GA) 2.2.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the annual survey of the structure, equipment, fittings, arrangements and materials should consist of:

(GA) 2.2.2.1 confirming that any special arrangements to survive conditions of damage are in order (IGC Code 83/90/00/14 ch.2);

(GA) 2.2.2.2 examining, where applicable, the alternative design and arrangements for the segregation of the cargo area, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (IGC Code 83/90/00/14 ch.3; SOLAS 74/00/06 reg.II-2/17);

(GA) 2.2.2.3 confirming that the wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends in the cargo area are in a satisfactory condition (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.4 examining the cargo machinery spaces and turret compartments, including their escape routes (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.5 confirming that the manually operated ESD (emergency shutdown) system together with the automatic shutdown of the cargo pumps and compressors are satisfactory (IGC Code 83/90/00/14 ch.5 and 18);

(GA) 2.2.2.6 examining the cargo control room (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.7 examining the gas detection arrangements for cargo control rooms and the measures taken to exclude ignition sources where such spaces are classified as hazardous areas (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.8 confirming that the arrangements for the air locks are being properly maintained (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.9 examining, as far as practicable, the bilge, ballast and oil fuel arrangements (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.10 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the electrical equipment, fire-fighting arrangements and means of communication between the cargo control room and the shore location (IGC Code 83/90/00/14 ch.3);

(GA) 2.2.2.11 confirming that the sealing arrangements at the gas domes are satisfactory (IGC Code 83/90/00/14 ch.4);

(GA) 2.2.2.12 confirming that portable or fixed drip trays or deck insulation for cargo leakage are in order (IGC Code 83/90/00/14 ch.4);

(GA) 2.2.2.13 examining the cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements and water curtain protection as appropriate (IGC Code 83/90/00 ch.5);

(GA) 2.2.2.14 confirming that the cargo tank and interbarrier space pressure and relief valves, including safety systems and alarms, are satisfactory (IGC Code 83/90/00/14 ch.5);

(GA) 2.2.2.15 confirming that any liquid and vapour hoses are suitable for their intended purpose and, where appropriate, type-approved or marked with date of testing (IGC Code 83/90/00/14 ch.5);

(GA) 2.2.2.16 examining the arrangements for the cargo pressure/temperature control including, when fitted, the thermal oxidation systems and any refrigeration system, and confirming that any associated safety measures and alarms are satisfactory (IGC Code 83/90/00/14 ch.7);

(GA) 2.2.2.17 examining the cargo, bunker, ballast and vent piping systems, including PRVs, vacuum relief valves, vent masts and protective screens, as far as practicable, and confirming that the PRVs are type-approved or marked with date of testing (IGC Code 83/90/00/14 chs.5 and 8);

(GA) 2.2.2.18 confirming that arrangements are made for sufficient inert gas to be carried to compensate for normal losses and that means are provided for monitoring the spaces (IGC Code 83/90/00/14 ch.9);

(GA) 2.2.2.19 confirming that the use of inert gas has not increased beyond that needed to compensate for normal losses by examining records of inert gas usage (IGC Code 83/90/00/14 ch.9);

(GA) 2.2.2.20 confirming that any air-drying system and any interbarrier and hold space purging inert gas system are satisfactory (IGC Code 83/90/00/14 ch.9);

(GA) 2.2.2.21 confirming that electrical equipment hazardous areas is in a satisfactory condition and is being properly maintained (IGC Code 83/90/00/14 ch.10);

(GA) 2.2.2.22 examining the arrangements for the fire protection and fire extinction and testing the remote means of starting one main fire pump (IGC Code 83/90/00/14 ch.11);

(GA) 2.2.2.23 examining the fixed fire-fighting system for enclosed cargo machinery spaces and for the enclosed cargo motor room within the cargo area, and confirming that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GA) 2.2.2.24 examining the water spray system for cooling, fire protection and crew protection and confirming that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GA) 2.2.2.25 examining the dry chemical powder fire-extinguishing system for the cargo area and confirming that its means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GA) 2.2.2.26 examining the appropriate fire-extinguishing system for the enclosed cargo machinery spaces for ships that are dedicated to the carriage of a restricted number of cargoes and the internal water spray system for the turret compartments, and confirming that their means of operation is clearly marked (IGC Code 83/90/00/14 ch.11);

(GA) 2.2.2.27 confirming the provision and examining the condition of the fire-fighters' outfits including their self-contained compressed air breathing apparatus, and the provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe (IGC Code 83/90/00/14 ch.11) (SOLAS 74/00/12 regs.II-2/10.10;FSS Code ch.3);

(GA) 2.2.2.28 examining, as far as practicable, and confirming the satisfactory operation of, the arrangements for the artificial ventilation of spaces in the cargo area normally entered during cargo handling operations (IGC Code 83/90/00/14 ch.12);

(GA) 2.2.2.29 examining, and confirming the satisfactory operation of, the arrangements for the artificial ventilation of spaces normally entered other than those covered by (GI) 2.1.2.27 (IGC Code 83/90/00/14 ch.12);

(GA) 2.2.2.30 examining, and testing as appropriate and as far as practicable, the liquid level indicators, overflow control, pressure gauges, high pressure and, when applicable, low pressure alarms, and temperature indicating devices for the cargo tanks (IGC Code 83/90/00/14 ch.13);

(GA) 2.2.2.31 examining, and testing as appropriate, the gas detection equipment (IGC Code 83/90/00/14 ch.13);

(GA) 2.2.2.32 examining, and testing as appropriate, the oxygen-deficiency monitoring equipment (IGC Code 14 ch.13);

(GA) 2.2.2.33 confirming that two sets of portable gas detection equipment suitable for the cargoes to be carried and a suitable instrument for measuring oxygen levels have been provided (IGC Code 83/90/00/14 ch.13);

(GA) 2.2.2.34 examining, as appropriate, the automation systems used to provide instrumented control, monitoring/alarm or safety functions (IGC Code 14 ch.13);

(GA) 2.2.2.35 checking the provision of equipment for personnel protection (IGC Code 83/90/00/14 ch.14) and in particular that:

(GA) 2.2.2.35.1 suitable protective equipment, including eye protection, is provided for protection of crew members engaged in normal cargo operations, and properly stowed;

(GA) 2.2.2.35.2 sufficient, but not less than three complete sets of safety equipment each permitting personnel to enter and work in a gas-filled space are provided and are properly stowed;

(GA) 2.2.2.35.3 an adequate supply of compressed air is provided and that the spare air bottle, air compressor and charging manifold are provided and properly stowed;

(GA) 2.2.2.35.4 a stretcher and the medical first-aid equipment, including oxygen resuscitation equipment, when available, for the products to be carried, are provided;

(GA) 2.2.2.35.5 respiratory and eye protection suitable for emergency escape purposes are provided and properly stowed; and

(GA) 2.2.2.35.6 decontamination arrangements and eyewashes are operational; and

(GA) 2.2.2.36 examining, when applicable, the arrangements for the use of cargo as fuel and testing, as far as practicable, that the gas supply to the space containing gas consumers is cut off should the double wall concentric pipes lose the inert gas pressure or the exhaust ventilation not be functioning correctly and that master gas fuel valve may be manually closed from within the space and at least one remote location (IGC Code 83/90/00/14 ch.16).

(GA) 2.2.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the annual survey should consist of:

(GA) 2.2.3.1 after a satisfactory survey, endorsing the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk; and

(GA) 2.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General" section 4.8.

(GIn) **2.3** **Intermediate surveys** – see part "General", section 4.3.

(GIn) 2.3.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:

(GIn) 2.3.1.1 the provisions of (GA) 2.2.1.

(GIn) 2.3.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the intermediate survey of the structure, equipment, fittings, arrangements and materials should consist of:

(GIn) 2.3.2.1 the provisions of (GA) 2.2.2;

(GIn) 2.3.2.2 confirming, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull (IGC Code 83/90/00/14 ch.10);

(GIn) 2.3.2.3 generally examining the electrical equipment and cables in hazardous areas and zones such as cargo machinery spaces and areas adjacent to cargo tanks to check for defective equipment, fixtures and wiring; the insulation resistance of the circuits should be tested and in cases where a proper record of testing is maintained consideration should be given to accepting recent readings (IGC Code 83/90/00/14 ch.10);

(GIn) 2.3.2.4 confirming that spares are provided for cargo area mechanical ventilation fans (IGC Code 83/90/00/14 ch.12);

(GIn) 2.3.2.5 confirming that the heating arrangements, if any, for steel structures are satisfactory; and

(GIn) 2.3.2.6 confirming that the high-level alarms of cargo tanks are properly working, by witnessing topping-off process for cargo tanks, at the first occasion of full loading after each dry-docking (IGC Code 14 ch.13).

(GIn) 2.3.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the intermediate survey should consist of:

(GIn) 2.3.3.1 after a satisfactory survey, endorsing the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk; and

(GIn) 2.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General" section 4.8.

(GR) **2.4** **Renewal surveys** – see part "General", section 4.4.

(GR) 2.4.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:

(GR) 2.4.1.1 the provisions of (GA) 2.2.1, except the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.

(GR) 2.4.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the renewal survey of the structure, equipment, fittings, arrangements and materials should consist of:

(GR) 2.4.2.1 the provisions of (GIn) 2.3.2;

(GR) 2.4.2.2 examining the insulation and means of support of the cargo tanks and confirming that the secondary barrier remains effective (IGC Code 83/90/00/14 ch.4); and

(GR) 2.4.2.3 conducting an internal examination of selected cargo tanks (IGC Code 83/90/00/14 ch.4);

(GR) 2.4.2.4 confirming that the high-level alarms of cargo tanks are properly working, by witnessing topping-off process for cargo tanks, at the first occasion of full loading after each dry-docking[1] (IGC Code 83/90/00/14 ch.13).

(GR) 2.4.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the renewal survey should consist of:

(GR) 2.4.3.1 after a satisfactory survey, issuing the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.

(W) **3** **GUIDELINES FOR SURVEYS FOR THE POLAR SHIP CERTIFICATE ADDITIONAL TO SOLAS CERTIFICATES**

(WI) **3.1** **Initial surveys** – see part "General" paragraph 5.13.3.1

[1] Refer to the *Unified interpretation of paragraph 13.3.5 of the IGC Code* (as amended by resolution MSC.370(93)) (MSC.1/Circ.1590).

(WI) 3.1.1 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the examination of plans and designs of the hull, machinery and equipment should consist of:

(WI) 3.1.1.1 (Add. to PI, CI, EI, RI) for ships intended to operate in low air temperature, confirming that the design service temperature of the systems and equipment required by this Code are consistent with the polar service temperature specified for the ship (Polar Code part I-A/para.1.4.2);

(WI) 3.1.1.2 (Add. to PI, EI, RI) for ships operating in low air temperature, confirming that the design maximum service time of the survival systems and equipment are consistent with the maximum expected rescue time of the vessel at polar service temperature (Polar Code part I-A/para.1.4.3);

(WI) 3.1.1.3 (Add. to PI, CI, EI, RI) reviewing the operational assessment of the ship and its equipment (Polar Code part I-A section 1.5);

(WI) 3.1.1.4 (Add. to PI, CI) examining the plans and designs for materials of exposed structures and scantlings of the ship, confirming that the materials and the scantlings are according to the polar service temperature and ice strengthening standards, where applicable for the category of the ship (Polar Code part I-A/paras.3.3.1 and 3.3.2);

(WI) 3.1.1.5 (Add. to PI, CI) examining the stability information, including the damage stability information, where applicable, and loading instrument as appropriate, with icing allowance in the stability calculations (Polar Code part I-A/paras.4.3.1.1 and 4.3.2);

(WI) 3.1.1.6 (Add. to PI, CI) examining whether structures and installations are designed with a view to minimizing the accretion of ice (Polar Code part I-A/para.4.3.1.2.1);

(WI) 3.1.1.7 (Add. to PI, CI) examining whether the ship is equipped with efficient means for removing ice as required by the Administration (Polar Code part I-A/para.4.3.1.2.2);

(WI) 3.1.1.8 (Add. to PI, CI) examining the means to remove or prevent ice and snow accretion around hatches and doors; for ships intended to operate in low air temperature, examining the means for prevention of freezing or excessive viscosity of liquids for hydraulically operated hatches and doors as mentioned in the PWOM (Polar Code part I-A/paras.5.3.1 and 5.3.2.1);

(WI) 3.1.1.9 (Add. to PI, CI) for ships intended to operate in low air temperature, confirming that the watertight and weathertight doors, hatches and closing devices, not within habitable environment and requiring access while at sea, are designed to be operable by personnel wearing heavy winter clothing including thick mittens (Polar Code part I-A/para.5.3.2.2);

(WI) 3.1.1.10 (Add. to PI, CI) examining the means for protecting machinery installations and associated equipment against the effect of ice accretion and/or snow accumulation, ice ingestion from seawater, freezing and increased viscosity of liquids, seawater intake temperature and snow ingestion, and that seawater supplies for machinery systems are designed to prevent ingestion of ice (Polar Code part I-A/paras.6.3.1.1, 6.3.1.2 and 6.3.1.3);

(WI) 3.1.1.11 (Add. to PI, CI) for ships intended to operate in low air temperature, confirming that the exposed machinery and electrical installation and appliances are fit for the polar service temperature (Polar Code part I-A/para.6.3.2.1);

(WI) 3.1.1.12 (Add. to PI, CI) for ships intended to operate in low air temperature, confirming that means are provided to ensure that combustion air for internal combustion engines driving essential machinery is maintained at a temperature in compliance with the criteria provided by the engine manufacturer (Polar Code part I-A/para.6.3.2.2);

(WI) 3.1.1.13 (Add. to PI, CI) for ships intended to operate in low air temperature, examining the plans for materials of the exposed machinery and foundations, confirming that the materials are approved according to applicable standards, taking into account the polar service temperature and the required ice strengthening (Polar Code part I-A/para.6.3.2.3);

(WI) 3.1.1.14 (Add. to PI, CI) examining the plans and design of the scantlings of propeller blades, propulsion line, steering equipment and other appendages, confirming that they are approved according to the polar service temperature if applicable and ice strengthening standards, where applicable for the category of the ship (Polar Code part I-A/para.6.3.3);

(WI) 3.1.1.15 (Add. to PI, EI) examining all components of fire safety systems and appliances if installed in exposed positions to ensure that they are protected from ice accretion and snow accumulation according to the operational assessment (Polar Code part I-A/para.7.2.1.1);

(WI) 3.1.1.16 (Add. to PI, EI) examining the design of fire safety systems and appliances for operation by persons wearing bulky and cumbersome cold weather gear including gloves, where appropriate (Polar Code part I-A/para.7.2.1.3);

(WI) 3.1.1.17 (Add. to PI, EI) examining the means to remove or prevent ice and snow accretion from accesses of fire safety systems and appliances, escape routes, muster stations, embarkation areas, survival craft, its launching appliances and access to survival craft according to the PWOM (Polar Code part I-A/paras.7.2.1.4 and 8.3.1.1);

(WI) 3.1.1.18 (Add. to PI, EI) confirming that the extinguishing media is suitable for the intended operation (Polar Code part I-A/para.7.2.1.5);

(WI) 3.1.1.19 (Add. to PI, EI) examining that all components of fire safety systems and appliances are designed to ensure availability and effectiveness at the polar service temperature (Polar Code part I-A/para.7.2.2.1);

(WI) 3.1.1.20 (Add. to PI, EI) examining that the isolating and pressure/vacuum valves in exposed locations are protected from ice accretion and remain accessible at all times (Polar Code part I-A/para.7.3.1.1);

(WI) 3.1.1.21 (Add. to PI, EI) examining that all two-way portable radio communication equipment is capable of operating at the polar service temperature (Polar Code part I-A/para.7.3.1.2);

(WI) 3.1.1.22 (Add. to PI, EI) examining that the fire pumps including emergency fire pumps, water mist and water spray pumps are located in compartments maintained above freezing (Polar Code part I-A/paras.7.3.2.1 and 7.3.2.2);

(WI) 3.1.1.23 (Add. to PI, EI) examining whether the arrangement of the fire main is such that exposed sections can be isolated and means of draining of exposed sections are provided, and, where fixed water-based fire-extinguishing systems are located in a space separate from the main fire pumps and use an own sea suction, confirming that this sea suction is capable of being cleared of ice accumulation (Polar Code part I-A/paras.7.3.2.2 and 7.3.2.4);

(WI) 3.1.1.24 (Add. to PI, EI) examining that the fire-fighter's outfits are stored in warm locations on the ship (Polar Code part I-A/para.7.3.2.3);

(WI) 3.1.1.25 (Add. to PI, EI) examining that portable and semi-portable extinguishers are protected from freezing temperatures, and confirming that locations subject to freezing are provided with extinguishers capable of operation at the polar service temperature (Polar Code part I-A/para.7.3.3.1);

(WI) 3.1.1.26 (Add. to PI, EI) examining the plans for the materials of exposed fire safety systems, confirming that they are approved according to the polar service temperature and ice strengthening standards (Polar Code part I-A/para.7.3.3.2);

(WI) 3.1.1.27 (Add. to PI, EI) for ships constructed on or after 1 January 2017, examining that the exposed escape routes are arranged so as not to hinder passage by persons wearing suitable polar clothing (Polar Code part I-A/para.8.3.1.2);

(WI) 3.1.1.28 (Add. to PI, EI) for ships intended to operate in low air temperatures, examining the adequacy of embarkation arrangements, with full regard to any effect of persons wearing additional polar clothing (Polar Code part I-A/para.8.3.1.3);

(WI) 3.1.1.29 (Add. to PI, EI) examining the means to ensure safe evacuation of persons, including safe deployment of survival equipment, when operating in ice-covered waters, or directly onto the ice, as applicable (Polar Code part I-A/para.8.3.2.1);

(WI) 3.1.1.30 (Add. to PI, EI) examining that life-saving appliances and arrangements as required by the Polar Code, if using devices requiring a source of power, are able to operate independently of the ship's main source of power (Polar Code part I-A/para.8.3.2.2);

(WI) 3.1.1.31 (Add. to PI) for passenger ships, examining that a proper sized immersion suit of the insulated type or a thermal protective aid is provided for each person on board according to the operational assessment (Polar Code part I-A/paras.8.3.3.1.1 and 8.3.3.1.2);

(WI) 3.1.1.32 (Add. to EI) for cargo ships, examining that all the immersion suits provided on board are of the insulated type (Polar Code part I-A/para.8.3.3.1.2);

(WI) 3.1.1.33 (Add. to PI, EI) examining that for ships intended to operate in extended periods of darkness, searchlights suitable for continuous use to facilitate identification of ice are provided for each lifeboat (Polar Code part I-A/para.8.3.3.2);

(WI) 3.1.1.34 (Add. to PI, EI) confirming that the lifeboats are of the partially or totally enclosed type, as appropriate (Polar Code part I-A/para.8.3.3.3.1);

(WI) 3.1.1.35 (Add. to PI, EI) examining that, when personal or group survival equipment is required according to the operational assessment, personal and group survival equipment sufficient for 110% of the persons on board is stowed in easily accessible locations; that containers for group survival equipment are designed to be easily movable over the ice and floatable; and that means of ensuring that personal and group survival equipment is accessible following abandonment is provided (Polar Code part I-A/paras.8.3.3.3.2, 8.3.3.3.3.1 to 8.3.3.3.3.4);

(WI) 3.1.1.36 (Add. to PI, EI) examining that the survival craft and launching appliances have sufficient capacity to accommodate the additional personal and group survival equipment if required and carried in addition to persons, and that adequate emergency rations are provided for the maximum expected time of rescue (Polar Code part I-A/paras.8.3.3.3.3.5 and 8.3.3.3.4);

(WI) 3.1.1.37 (Add. to PI, EI) confirming that the instructions to passengers on the use of the personal survival equipment and the action to take in an emergency are provided on board (Polar Code part I-A/para.8.3.3.3.3.6);

(WI) 3.1.1.38 (Add. to PI, EI) examining the means of receiving and displaying the information on ice conditions in the area of operation (Polar Code part I-A/para.9.3.1);

(WI) 3.1.1.39 (Add. to PI, EI) for ships constructed on or after 1 January 2017 and ice strengthened, examining that either two independent echo-sounding devices or one echo-sounding device with two separate independent transducers are provided (Polar Code part I-A/para.9.3.2.1.1);

(WI) 3.1.1.40 (Add. to PI, EI) confirming that clear view astern is achieved, and for ships built before 1 July 1998 and with a length of less than 55 m, confirming that, clear-view navigation bridge front windows are provided (SOLAS 74/00reg.V/22.1.9.4, Polar Code part I-A/ch.9.3.2.1.2);

(WI) 3.1.1.41 (Add. to PI, EI) where ice accretion is likely to occur, examining the means to prevent the accumulation of ice on antennas required for navigation and communication (Polar Code part I-A/para.9.3.2.1.3);

(WI) 3.1.1.42 (Add. to PI, EI) for ice strengthened ships, examining that sensors for navigational equipment, required either by SOLAS or the Code, projecting below the hull are protected against ice (Polar Code part I-A/para.9.3.2.1.4.1);

(WI)	3.1.1.43 (Add. to PI, EI)	examining the arrangements of the bridge wings for protection of navigational equipment and operating personnel, in category A and B ships constructed on or after 1 January 2017 (Polar Code part I-A/para.9.3.2.1.4.2);
(WI)	3.1.1.44 (Add. to PI, EI)	examining the two independent non-magnetic means for heading information, and at least one GNSS compass or equivalent for ships intended to proceed to latitudes over 80 degrees, connected to the ship's main and emergency source of power (Polar Code part I-A/paras.9.3.2.2.1 and 9.3.2.2.2);
(WI)	3.1.1.45 (Add. to PI, EI)	examining that two remotely rotatable, narrow-beam searchlights controllable from the bridge to provide lighting over an arc of 360 degrees, or other means to visually detect ice, are provided on board if the ship is not operating solely in 24 h daylight, and examining that a manually initiated flashing red light visible from astern to indicate when the ship is stopped is available, for ships involved in operations with an icebreaker escort (Polar Code part I-A/paras.9.3.3.1 and 9.3.3.2);
(WI)	3.1.1.46 (Add. to PI, RI)	examining that the communication equipment on board has the capabilities for ship-to-ship and ship-to-shore communication, taking into account the limitations of communications systems in high latitudes and the anticipated low temperature (Polar Code part I-A/para.10.3.1.1);
(WI)	3.1.1.47 (Add. to PI, RI)	for ships intended to provide icebreaking escort, examining the sound signalling system capable of being mounted to face astern (Polar Code part I-A/para.10.3.1.2);
(WI)	3.1.1.48 (Add. to PI, RI)	examining the means for two-way on-scene and SAR coordination communications for search and rescue purposes including aeronautical frequencies operations and that communication equipment provides for two-way voice and data communication with a Telemedical Assistance Service (TMAS) (Polar Code part I-A/paras.10.3.1.3 and 10.3.1.4);
(WI)	3.1.1.49 (Add. to PI, RI)	for ships intended to operate in low air temperature, examining that each rescue boat and lifeboat is capable of being provided with devices for transmitting signals for distress alerting, locating and on-scene communications (Polar Code part I-A/para.10.3.2.1);
(WI)	3.1.1.50 (Add. to PI, RI)	for ships intended to operate in low air temperature, examining the capability of all other survival craft to transmit signals for location and for communication (Polar Code part I-A/para.10.3.2.2);
(WI)	3.1.1.51 (Add. to PI, RI)	confirming that procedures are provided on board for ensuring the availability of the mandatory communication equipment for use in survival craft, including availability of battery power for the maximum expected time of rescue (Polar Code part I-A/para.10.3.2.3); and
(WI)	3.1.1.52 (Add. to PI, CI, EI, RI)	examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 74/00/14 reg.XIV/4).

(WI) 3.1.2 For compliance with part I-A of the International Code for Ships Operating in Polar Waters, the survey during construction and after installation of the hull, machinery and equipment should consist of:

(WI) 3.1.2.1 (Add. to PI, CI, EI, RI) for ships intended to operate in low air temperature, checking the certificates or equivalent documents of the systems and equipment required by this Code for consistency with the polar service temperature specified for the ship (Polar Code part I-A/para.1.4.2);

(WI) 3.1.2.2 (Add. to PI, EI RI) for ships operating in low air temperature, checking the certificates or equivalent documents of the survival systems and equipment for consistency with the maximum expected rescue time at polar service temperature (Polar Code part I-A/para.1.4.3);

(WI) 3.1.2.3 (Add. to PI, CI) examining the materials of exposed structures and the scantlings of the ship in accordance with the polar service temperature and ice strengthening standards, where applicable for the category of the ship (Polar Code part I-A/para.3.3.1 and 3.3.2);

(WI) 3.1.2.4 (Add. to PI, CI examining whether structures and installations are designed with a view to minimizing the accretion of ice (Polar Code part I-A/para.4.3.1.2.1);

(WI) 3.1.2.5 (Add. to PI, CI) examining the means for removing ice as required by the Administration and mentioned in the PWOM (Polar Code part I-A/para.4.3.1.2.2);

(WI) 3.1.2.6 (Add. to PI, CI) examining the means to remove or prevent ice and snow accretion around hatches and doors, and testing the function of the electric heat tracing system protecting hatches and doors from freezing as applicable; for ships intended to operate in low air temperature, examining the means for prevention of freezing or excessive viscosity of liquids for hydraulically operated hatches and doors as mentioned in the PWOM (Polar Code part I-A/paras.5.3.1 and 5.3.2.1);

(WI) 3.1.2.7 (Add. to PI, CI) for ships intended to operate in low air temperature, examining that the watertight and weathertight doors, hatches and closing devices, which are not within a habitable environment and require access while at sea are operable by personnel wearing heavy winter clothing including thick mittens (Polar Code part I-A/para.5.3.2.2);

(WI) 3.1.2.8 (Add. to PI, CI) examining the means for protecting machinery installations and associated equipment against the effect of ice accretion and/or snow accumulation, ice ingestion from seawater, freezing and increased viscosity of liquids, seawater intake temperature and snow ingestion, and that seawater supplies for machinery systems are designed to prevent ingestion of ice (Polar Code part I-A/paras.6.3.1.1, 6.3.1.2 and 6.3.1.3);

(WI) 3.1.2.9 (Add. to PI, CI) for ships intended to operate in low air temperature, confirming that the exposed machinery and electrical installation and appliances are fit for the polar service temperature (Polar Code part I-A/para.6.3.2.1);

(WI) 3.1.2.10 (Add. to PI, CI) for ships intended to operate in low air temperature, examining and testing the means to ensure that combustion air for internal combustion engines driving essential machinery is maintained at a temperature in compliance with the criteria provided by the engine manufacturer (Polar Code part I-A/para.6.3.2.2);

(WI) 3.1.2.11 (Add. to PI, CI) for ships intended to operate in low air temperature, examining the certificates or equivalent documents of the materials of the exposed machinery and foundations in accordance with applicable standards, taking into account the polar service temperature and the required ice strengthening (Polar Code part I-A/para.6.3.2.3);

(WI) 3.1.2.12 (Add. to PI, CI) examining the scantlings of propeller blades, propulsion line, steering equipment and other appendages in accordance with the polar service temperature if applicable and ice strengthening standards, where applicable for the category of the ship (Polar Code part I-A/para.6.3.3);

(WI) 3.1.2.13 (Add. to PI, EI) examining that all components of fire safety systems and appliances if installed in exposed positions are protected from ice accretion and snow accumulation according to the operational assessment (Polar Code part I-A/para.7.2.1.1);

(WI) 3.1.2.14 (Add. to PI, EI) examining the fire safety systems and appliances for operation by persons wearing bulky and cumbersome cold weather gear including gloves, where appropriate (Polar Code part I-A/para.7.2.1.3);

(WI) 3.1.2.15 (Add. to PI, EI) examining the means to remove or prevent ice and snow accretion from accesses of fire safety systems and appliances, escape routes, muster stations, embarkation areas, survival craft, its launching appliances and access to survival craft according to the PWOM (Polar Code part I-A/paras.7.2.1.4 and 8.3.1.1);

(WI) 3.1.2.16 (Add. to PI, EI) confirming that the extinguishing media is suitable for the intended operation (Polar Code part I-A/para.7.2.1.5);

(WI) 3.1.2.17 (Add. to PI, EI) examining that all components of fire safety systems and appliances are designed to ensure availability and effectiveness at the polar service temperature (Polar Code part I-A/para.7.2.2.1);

(WI) 3.1.2.18 (Add. to PI, EI) examining that the isolating and pressure/vacuum valves in exposed locations are protected from ice accretion and remain accessible at all times (Polar Code part I-A/para.7.3.1.1);

(WI) 3.1.2.19 (Add. to PI, EI) examining that all two-way portable radio communication equipment is capable of operating at the polar service temperature (Polar Code part I-A/para.7.3.1.2);

(WI) 3.1.2.20 (Add. to PI, EI) examining that the fire pumps including emergency fire pumps, water mist and water spray pumps are located in compartments maintained above freezing (Polar Code part I-A/paras.7.3.2.1 and 7.3.2.2);

(WI) 3.1.2.21 (Add. to PI, EI) examining whether the arrangement of the fire main is such that exposed sections can be isolated and means of draining of exposed sections are provided, and, where fixed water-based fire-extinguishing systems are located in a space separate from the main fire pumps and use an own sea suction, confirming that this sea suction is capable of being cleared of ice accumulation (Polar Code part I-A/paras.7.3.2.2 and 7.3.2.4);

(WI) 3.1.2.22 (Add. to PI, EI) examining that the fire-fighter's outfits are stored in warm locations on the ship (Polar Code part I-A/para.7.3.2.3);

(WI) 3.1.2.23 (Add. to PI, EI) examining that portable and semi-portable extinguishers are protected from freezing temperatures, and confirming that locations subject to freezing are provided with extinguishers capable of operation at the polar service temperature (Polar Code part I-A/para.7.3.3.1);

(WI) 3.1.2.24 (Add. to PI, EI) examining the exposed fire safety systems in accordance with the polar service temperature and ice strengthening standards (Polar Code part I-A/para.7.3.3.2);

(WI) 3.1.2.25 (Add. to PI, EI) for ships constructed on or after 1 January 2017, confirming the exposed escape routes arranged as a passage by persons wearing suitable polar clothing (Polar Code part I-A/para.8.3.1.2);

(WI) 3.1.2.26 (Add. to PI, EI) for ships intended to operate in low air temperatures, confirming the embarkation arrangements, with full regard for persons wearing additional polar clothing (Polar Code part I-A/para.8.3.1.3);

(WI) 3.1.2.27 (Add. to PI, EI) examining the means to ensure safe evacuation of persons, including safe deployment of survival equipment, when operating in ice-covered waters, or directly onto the ice, as applicable (Polar Code part I-A/para.8.3.2.1);

(WI) 3.1.2.28 (Add. to PI, EI) examining life-saving appliances and arrangements as required by the Polar Code, if using devices requiring a source of power, and testing that they are able to operate independently of the ship's main source of power (Polar Code part I-A/para.8.3.2.2);

(WI) 3.1.2.29 (Add. to PI) for passenger ships, examining that a proper sized immersion suit of the insulated type or a thermal protective aid is provided for each person on board according to the operational assessment (Polar Code part I-A/paras.8.3.3.1.1 and 8.3.3.1.2);

(WI) 3.1.2.30 (Add. to EI) for cargo ships, examining that all the immersion suits equipped on board are of the insulated type (Polar Code part I-A/para.8.3.3.1.2);

(WI) 3.1.2.31 (Add. to PI, EI) for ships intended to operate in extended periods of darkness, examining and testing the searchlights provided for each lifeboat suitable for continuous use to facilitate identification of ice (Polar Code part I-A/para.8.3.3.2);

(WI) 3.1.2.32 (Add. to PI, EI) confirming that the lifeboats are of the partially or totally enclosed type, as appropriate (Polar Code part I-A/para.8.3.3.3.1);

(WI)	3.1.2.33 (Add. to PI, EI)	confirming that, when personal or group survival equipment is required according to the operational assessment, personal and group survival equipment sufficient for 110% of the persons on board is stowed in easily accessible locations; that containers for group survival equipment are designed to be easily movable over the ice and floatable; and that means of ensuring that personal and group survival equipment is accessible following abandonment is provided (Polar Code part I-A/paras.8.3.3.3.2, 8.3.3.3.3.1 to 8.3.3.3.3.4);
(WI)	3.1.2.34 (Add. to PI, EI)	confirming that the survival craft and launching appliances have sufficient capacity to accommodate the additional personal and group survival equipment if required and carried in addition to persons, and that adequate emergency rations are provided for the maximum expected time of rescue (Polar Code part I-A/paras.8.3.3.3.3.5 and 8.3.3.3.4);
(WI)	3.1.2.35 (Add. to PI, EI)	confirming that the instructions to passengers on the use of the personal survival equipment and the action to take in an emergency are provided on board (Polar Code part I-A/para.8.3.3.3.3.6);
(WI)	3.1.2.36 (Add. to PI, EI)	examining the means of receiving and displaying the information on ice conditions in the area of operation (Polar Code part I-A/para.9.3.1);
(WI)	3.1.2.37 (Add. to PI, EI)	for ships constructed on or after 1 January 2017 and ice strengthened, confirming that either two independent echo-sounding devices or one echo-sounding device with two separate independent transducers are provided (Polar Code part I-A/para.9.3.2.1.1);
(WI)	3.1.2.38 (Add. to PI, EI)	confirming that clear view astern is achieved, and for ships built before 1 July 1998 and with a length of less than 55 m, confirming that clear-view navigation bridge front windows are provided (SOLAS 74/00 regulation V/22.1.9.4, Polar Code part I-A/para.9.3.2.1.2);
(WI)	3.1.2.39 (Add. to PI, EI)	where ice accretion is likely to occur, examining the means to prevent the accumulation of ice on antennas required for navigation and communication (Polar Code part I-A/para.9.3.2.1.3);
(WI)	3.1.2.40 (Add. to PI, EI)	for ice strengthened ships, examining that sensors for navigational equipment, required either by SOLAS or the Code, projecting below the hull are protected against ice (Polar Code part I-A/para.9.3.2.1.4.1);
(WI)	3.1.2.41 (Add. to PI, EI)	examining the arrangements of the bridge wings for protection of navigational equipment and operating personnel, in category A and B ships constructed on or after 1 January 2017 (Polar Code part I-A/para.9.3.2.1.4.2);
(WI)	3.1.2.42 (Add. to PI, EI)	examining the two independent non-magnetic means for heading information, and at least one GNSS compass or equivalent for ships intended to proceed to latitudes over 80 degrees, connected to the ship's main and emergency source of power (Polar Code part I-A/paras.9.3.2.2.1 and 9.3.2.2.2);

(WI) 3.1.2.43 (Add. to PI, EI) examining and testing the two remotely rotatable, narrow-beam searchlights controllable from the bridge to provide lighting over an arc of 360 degrees, or other means to visually detect ice, for ships not operating solely in 24 h daylight, and examining and testing the manually initiated flashing red light visible from astern to indicate when the ship is stopped, for ships involved in operations with an icebreaker escort (Polar Code part I-A/paras.9.3.3.1 and 9.3.3.2);

(WI) 3.1.2.44 (Add. to PI, RI) examining and testing the communication equipment on board for ship-to-ship and ship-to-shore communication, taking into account the limitations of communications systems in high latitudes and the anticipated low temperature (Polar Code part I-A/para.10.3.1.1);

(WI) 3.1.2.45 (Add. to PI, RI) for ships intended to provide icebreaking escort, examining the sound signalling system capable of being mounted to face astern (Polar Code part I-A/para.10.3.1.2);

(WI) 3.1.2.46 (Add. to PI, RI) examining and testing the means for two-way on-scene and SAR coordination communications for search and rescue purposes including aeronautical frequencies operations and that communication equipment provides for two-way voice and data communication with a Telemedical Assistance Service (TMAS) (Polar Code part I-A/para.10.3.1.3 and 10.3.1.4);

(WI) 3.1.2.47 (Add. to PI, RI) for ships intended to operate in low air temperature, examining that each rescue boat and lifeboat is capable of being provided with devices for transmitting signals for distress alerting, locating and on-scene communications (Polar Code part I-A/para.10.3.2.1);

(WI) 3.1.2.48 (Add. to PI, RI) for ships intended to operate in low air temperature, examining the capability of all other survival craft to transmit signals for location and for communication (Polar Code part I-A/para.10.3.2.2); and

(WI) 3.1.2.49 (Add. to PI, CI, EI, RI) examining, where applicable, the alternative design and arrangements for ship structure, machinery installations, fire safety/protection or life-saving appliances and arrangements, in accordance with the test and inspection requirements, if any, specified in the approved documentation and PWOM (SOLAS 74/00/14 reg.XIV/4).

(WI) 3.1.3 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the check that all the required documentation has been placed on board theship should consist of:

(WI) 3.1.3.1 (Add. to PI, CI, EI, RI) checking that the PWOM with the hazards identified in the operational assessment being addressed properly is placed on board (Polar Code part I-A/paras.2.3, 4.3.1.3 and 4.3.1.4);

(WI) 3.1.3.2 (Add. to PI, CI) confirming that the approved stability information, damage stability information and loading instrument as appropriate, with icing allowance in the stability calculations, are on board (Polar Code part I-A/paras.4.3.1.1 and 4.3.2);

(WI) 3.1.3.3 (Add. to PI, EI) confirming as applicable that the crew training records or other equivalent documents for the use of the personal survival equipment and group survival equipment are placed on board (Polar Code part I-A/para.8.3.3.3.3.7);

(WI) 3.1.3.4 (Add. to PI, RI) confirming that procedures are provided on board for ensuring the availability of the mandatory communication equipment for use in survival craft, including availability of battery power for the maximum expected time of rescue (Polar Code part I-A/para.10.3.2.3); and

(WI) 3.1.3.5 (Add. to PI, CI, EI, RI) confirming that, where applicable, the approved documentation for the alternative design and arrangement is on board, with the relevant contents being entered in the PWOM (SOLAS 74/00/14 reg.XIV/4).

(WI) 3.1.4 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the completion of the initial survey should consist of:

(WI) 3.1.4.1 after a satisfactory survey, issuing the Polar Ship Certificate and its associated Record of Equipment.

(WA) **3.2** **Annual surveys** – see part "General" paragraph 5.13.3.2

(WA) 3.2.1 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the examination of current certificates and other records should consist of:

(WA) 3.2.1.1 (Add. to CA, EA, RP) confirming the provision of the operational assessment and reviewing any changes thereto (Polar Code part I-A/section 1.5);

(WA) 3.2.1.2 (Add. to CA, EA, RP) confirming that the PWOM is on board, and checking whether any changes have been made to it since the last survey (Polar Code part I-A/section 2.3 and paras.4.3.1.3 and 4.3.1.4);

(WA) 3.2.1.3 (Add. to CA) confirming the availability of approved stability information, damage stability information and loading instrument as appropriate, with icing allowance in the stability calculations (Polar Code part I-A/paras.4.3.1.1 and 4.3.2);

(WA) 3.2.1.4 (Add. to EA) confirming as applicable that the crew training records or other equivalent documents for the use of the personal survival equipment and group survival equipment are placed on board (Polar Code part I-A/para.8.3.3.3.3.7);

(WA) 3.2.1.5 (Add. to RP) confirming that procedures are provided on board for ensuring the availability of the mandatory communication equipment for use in survival craft, including availability of battery power for the maximum expected time of rescue (Polar Code part I-A/para.10.3.2.3);

(WA)	3. 2.1.6 (Add. to CA, EA, RP)	confirming that the voyage plan has been provided on board for the voyages in polar waters since the last survey; if no trading in polar waters has taken place, random checking of the historical plans may be considered (Polar Code part I-A/section 11.3);
(WA)	3. 2.1.7 (Add. to CA, EA, RP)	where applicable, checking the qualifications of the masters, chief mates, officers and/or other persons in charge of a navigational watch on board ships operating in polar waters in accordance with chapter V of the STCW Convention and the STCW Code (Polar Code part I-A/paras.12.3.1 and 12.3.2);
(WA)	3.2.1.8 (Add. to CA, EA, RP)	checking the qualification certificates (if required by the Administration) and/or familiarization records of all the crew members for their assigned duties referenced in the PWOM (Polar Code part I-A/para.12.3.4); and
(WA)	3.2.1.9 (Add. to CA, EA, RP)	confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board, with the relevant contents being entered in the PWOM (SOLAS 74/00/14 reg.XIV/4).
(WA)	3.2.2	For compliance with part I-A of the International Code for Ships Operating in Polar Waters the annual survey of the hull, machinery and equipment should consist of:
(WA)	3.2.2.1 (Add. to CA)	examining the means for removing ice as required by the Administration and mentioned in the PWOM (Polar Code part I-A/para.4.3.1.2.2);
(WA)	3.2.2.2 (Add. to CA)	examining the means to remove or prevent ice and snow accretion around hatches and doors, and testing the function of the electric heat tracing system protecting hatches and doors from freezing as applicable; for ships intended to operate in low air temperature, examining the means for prevention of freezing or excessive viscosity of liquids for hydraulically operated hatches and doors as mentioned in the PWOM (Polar Code part I-A/para.5.3.1 and 5.3.2.1);
(WA)	3.2.2.3 (Add. to CA)	examining the means for protecting machinery installations and associated equipment against the effect of ice accretion and/or snow accumulation, ice ingestion from seawater, freezing and increased viscosity of liquids, seawater intake temperature and snow ingestion (Polar Code part I-A/para.6.3.1.1 and 6.3.1.2);
(WA)	3.2.2.4 (Add. to CA)	for ships intended to operate in low air temperature, examining and testing the means to ensure that combustion air for internal combustion engines driving essential machinery is maintained at a temperature in compliance with the criteria provided by the engine manufacturer (Polar Code part I-A/para.6.3.2.2);
(WA)	3.2.2.5 (Add. to EA)	examining that all components of fire safety systems and appliances if installed in exposed positions are protected from ice accretion and snow accumulation according to the operational assessment (Polar Code part I-A/para.7.2.1.1);

(WA) (Add. to EA) 3.2.2.6 examining the fire safety systems and appliances for operation by persons wearing bulky and cumbersome cold weather gear including gloves, where appropriate (Polar Code part I-A/para.7.2.1.3);

(WA) (Add. to EA) 3.2.2.7 examining the means to remove or prevent ice and snow accretion from accesses of fire safety systems and appliances, escape routes, muster stations, embarkation areas, survival craft, its launching appliances and access to survival craft according to the PWOM (Polar Code part I-A/paras.7.2.1.4 and 8.3.1.1);

(WA) (Add. to EA) 3.2.2.8 confirming that the extinguishing media are suitable for the intended operation (Polar Code part I-A/para.7.2.1.5);

(WA) (Add. to EA) 3.2.2.9 examining that the isolating and pressure/vacuum valves in exposed locations are protected from ice accretion and remain accessible at all time (Polar Code part I-A/para.7.3.1.1);

(WA) (Add. to EA) 3.2.2.10 examining that all two-way portable radio communication equipment is capable of operating at the polar service temperature (Polar Code part I-A/para.7.3.1.2);

(WA) (Add. to EA) 3.2.2.11 examining that the fire pumps including emergency fire pumps, water mist and water spray pumps are located in compartments maintained above freezing (Polar Code part I-A/paras.7.3.2.1 and 7.3.2.2);

(WA) (Add. to EA) 3.2.2.12 examining whether the arrangement of the fire main is such that exposed sections can be isolated and means of draining of exposed sections are provided, and, where fixed water-based fire-extinguishing systems are located in a space separate from the main fire pumps and use an own sea suction, confirming that this sea suction is capable of being cleared of ice accumulation (Polar Code part I-A/paras.7.3.2.2 and 7.3.2.4);

(WA) (Add. to EA) 3.2.2.13 examining that the fire-fighter's outfits are stored in warm locations on the ship (Polar Code part I-A/para.7.3.2.3);

(WA) (Add. to EA) 3.2.2.14 examining that portable and semi-portable extinguishers are protected from freezing temperatures, and confirming that locations subject to freezing are provided with extinguishers capable of operation at the polar service temperature (Polar Code part I-A/para.7.3.3.1);

(WA) (Add. to EA) 3.2.2.15 examining the exposed fire safety systems in accordance with the polar service temperature and ice strengthening standards (Polar Code part I-A/para.7.3.3.2);

(WA) (Add. to EA) 3.2.2.16 examining the means to ensure safe evacuation of persons, including safe deployment of survival equipment, when operating in ice-covered waters, or directly onto the ice, as applicable (Polar Code part I-A/para.8.3.2.1);

(WA) (Add. to EA) 3.2.2.17 confirming that life-saving appliances and arrangements as required by the Polar Code, if using devices requiring a source of power, are able to operate independently of the ship's main source of power (Polar Code part I-A/para.8.3.2.2);

(WA) (Add. to EA) 3.2.2.18 for cargo ships, examining that all the immersion suits equipped on board are of the insulated type (Polar Code part I-A/para.8.3.3.1.2);

(WA) (Add. to EA) 3.2.2.19 for ships intended to operate in extended periods of darkness, examining and testing the searchlights suitable for continuous use to facilitate identification of ice provided for each lifeboat (Polar Code part I-A/para.8.3.3.2);

(WA) (Add. to EA) 3.2.2.20 confirming that the lifeboats are of the partially or totally enclosed type, as appropriate (Polar Code part I-A/para.8.3.3.3.1);

(WA) (Add. to EA) 3.2.2.21 confirming that, when personal or group survival equipment is required according to the operational assessment, personal and group survival equipment sufficient for 110% of the persons on board is stowed in easily accessible locations; that containers for group survival equipment are designed to be easily movable over the ice and floatable; and that means of ensuring that personal and group survival equipment is accessible following abandonment is provided (Polar Code part I-A/paras.8.3.3.3.2, 8.3.3.3.3.1 to 8.3.3.3.3.4);

(WA) (Add. to EA) 3.2.2.22 confirming that the survival craft and launching appliances have sufficient capacity to accommodate the additional personal and group survival equipment if required and carried in addition to persons and that adequate emergency rations are provided for the maximum expected time of rescue (Polar Code part I-A/paras.8.3.3.3.3.5 and 8.3.3.3.4);

(WA) (Add. to EA) 3.2.2.23 confirming that the instructions to passengers are provided on board (Polar Code part I-A/para.8.3.3.3.3.6);

(WA) (Add. to EA) 3.2.2.24 examining the means of receiving and displaying information on ice conditions in the area of operation, with a demonstration by the crew on using the equipment and receiving the relevant information (Polar Code part I-A/para.9.3.1);

(WA) (Add. to EA) 3.2.2.25 for ships constructed on or after 1 January 2017 and ice strengthened, confirming that either two independent echo-sounding devices or one echo-sounding device with two separate independent transducers are provided (Polar Code part I-A/para.9.3.2.1.1);

(WA) (Add. to EA) 3.2.2.26 confirming that clear view astern is achieved, and for ships built before 1 July 1998 and with a length of less than 55 m, confirming that clear-view navigation bridge front windows are provided (SOLAS 74/00 regulation V/22.1.9.4, Polar Code part I-A/para.9.3.2.1.2);

(WA) (Add. to EA) 3.2.2.27 where ice accretion is likely to occur, examining the means to prevent the accumulation of ice on antennas required for navigation and communication (Polar Code part I-A/para.9.3.2.1.3);

(WA) (Add. to EA) 3.2.2.28 examining the arrangements of the bridge wings for protection of navigational equipment and operating personnel, in category A and B ships constructed on or after 1 January 2017 (Polar Code part I-A/para.9.3.2.1.4.2);

(WA) 3.2.2.29 (Add. to EA) examining the two independent non-magnetic means for heading information, and at least one GNSS compass or equivalent for ships intended to proceed to latitudes over 80 degrees, connected to the ship's main and emergency source of power (Polar Code part I-A/paras.9.3.2.2.1 and 9.3.2.2.2);

(WA) 3.2.2.30 (Add. to EA) examining and testing the two remotely rotatable, narrow-beam searchlights controllable from the bridge to provide lighting over an arc of 360 degrees, or other means to visually detect ice, for ships not operating solely in 24 h daylight, and examining and testing the manually initiated flashing red light visible from astern to indicate when the ship is stopped, for ships involved in operations with an icebreaker escort (Polar Code part I-A/paras.9.3.3.1 and 9.3.3.2);

(WA) 3.2.2.31 (Add. to RP) examining and testing the communication equipment on board for ship-to-ship and ship-to-shore communication, taking into account the limitations of communications systems in high latitudes and the anticipated low temperature (Polar Code part I-A/para.10.3.1.1);

(WA) 3.2.2.32 (Add. to RP) for ships intended to provide icebreaking escort, examining and testing the sound signalling system capable of being mounted to face astern (Polar Code part I-A/para.10.3.1.2);

(WA) 3.2.2.33 (Add. to RP) examining and testing the means for two-way on-scene and SAR coordination communications for search and rescue purposes including aeronautical frequencies operations, and that communication equipment provides for two-way voice and data communication with a Telemedical Assistance Service (TMAS) (Polar Code part I-A/paras.10.3.1.3 and 10.3.1.4);

(WA) 3.2.2.34 (Add. to RP) for ships intended to operate in low air temperature, examining that each rescue boat and lifeboat is capable of being provided with devices for transmitting signals for distress alerting, locating and on-scene communications (Polar Code part I-A/para.10.3.2.1);

(WA) 3.2.2.35 (Add. to RP) for ships intended to operate in low air temperature, examining the capability of all other survival craft to transmit signals for location and for communication (Polar Code part I-A/para.10.3.2.2); and

(WA) 3.2.2.36 (Add. to CA, EA, RP) examining, where applicable, the alternative design and arrangements for ship structure, machinery installations, fire safety/protection or life-saving appliances and arrangements, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation and PWOM (SOLAS 74/00/14 reg.XIV/4).

(WA) 3.2.3 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the completion of the annual survey should consist of:

(WA) 3.2.3.1 (Add. to CA, EA, RP) after a satisfactory survey, endorsing the Polar Ship Certificate; and

(WA) 3.2.3.2 (Add. to CA, EA, RP) if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General" section 4.8.

(WIn) **3.3** **Intermediate surveys** – see part "General", paragraph 5.13.3.3

(WIn) 3.3.1 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the examination of current certificates and other records should consist of:

(WIn) 3.3.1.1 (Add. to CIn) the provisions of (WA) 3.2.1 except (WA) 3.2.1.4 and (WA) 3.2.1.5.

(WIn) 3.3.2 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the intermediate survey of the hull, machinery and equipment should consist of:

(WIn) 3.3.2.1 (Add. to CIn) the provisions of (WA) 3.2.2 except (WA) 3.2.2.5 to (WA) 3.2.2.36.

(WIn) 3.3.3 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the completion of the intermediate survey should consist of:

(WIn) 3.3.3.1 (Add. to CIn) after a satisfactory survey endorsing the Polar Ship Certificate; and

(WIn) 3.3.3.2 (Add. to CIn) if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General", section 4.8.

(WP) **3.4** **Periodical surveys** – see part "General", paragraph 5.13.3.4

(WP) 3.4.1 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the examination of current certificates and other records should consist of:

(WP) 3.4.1.1 (Add. to EP) the provisions of (WA) 3.2.1 except (WA) 3.2.1.3 and (WA) 3.2.1.5.

(WP) 3.4.2 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the periodical survey of the life-saving appliances and other equipment should consist of:

(WP) 3.4.2.1 (Add. to EP) the provisions of (WA) 3.2.2 except (WA) 3.2.2.1 to (WA) 3.2.2.4 and (WA) 3.2.2.32 to (WA) 3.2.2.36.

(WP) 3.4.3 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the completion of the periodical survey should consist of:

(WP) 3.4.3.1 (Add. to EP) after a satisfactory survey, endorsing the Polar Ship Certificate; and

(WP) 3.4.3.2 (Add. to EP) if a survey shows that the condition of a ship or its equipment is unsatisfactory – see part "General", section 4.8.

(WR) **3.5** **Renewal surveys** – see part "General" paragraph 5.13.3.5

(WR) 3.5.1 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the examination of current certificates and other records should consist of:

(WR) 3.5.1.1 (Add. to PR, CR, ER, RR) the provisions of (WA) 3.2.1, except the Polar Ship Certificate.

(WR) 3.5.2 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the renewal survey of the hull, machinery and equipment should consist of:

(WR) 3.5.2.1 (Add. to CR, ER, RR) for cargo ships, the provisions of (WA) 3.2.2;

(WR) 3.5.2.2 (Add. to PR) for passenger ships, the provisions of (WA) 3.2.2 except (WA) 3.2.2.18;

(WR) 3.5.2.3 (Add. to PR) for passenger ships, examining that a proper sized immersion suit of the insulated type or a thermal protective aid is provided for each person on board according to the operational assessment (Polar Code part I-A/para.8.3.3.1.1 and 8.3.3.1.2); and

(WR) 3.5.2.4 (Add. to PR, ER) for ice strengthened ships, examining that sensors for navigational equipment, required either by SOLAS or the Code, projecting below the hull are protected against ice (SOLAS 74/00 ch.V, Polar Code part I-A/para.9.3.2.1.4.1).

(WR) 3.5.3 For compliance with part I-A of the International Code for Ships Operating in Polar Waters the completion of the renewal survey should consist of:

(WR) 3.5.3.1 (Add. to PR, CR, ER, RR) after a satisfactory survey, issuing the Polar Ship Certificate.

Appendix 1

SUMMARY OF AMENDMENTS TO MANDATORY INSTRUMENTS REFLECTED IN THE SURVEY GUIDELINES UNDER THE HSSC

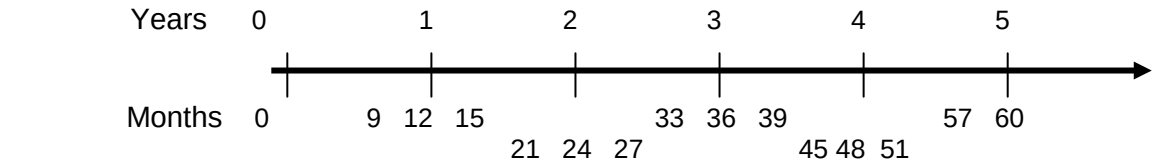
The amendments to mandatory instruments reflected in annexes 1 to 4 are summarized below to facilitate amendments to the Survey Guidelines under the HSSC in the future:

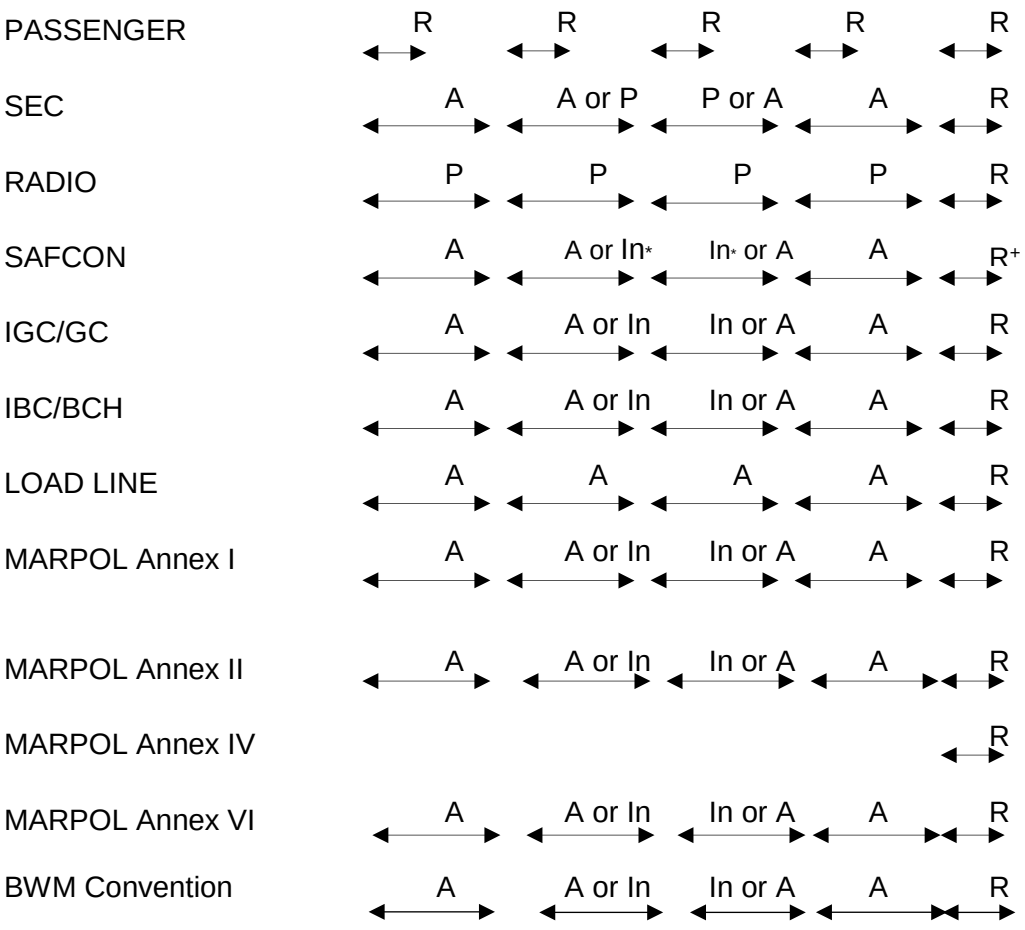
SOLAS 74	up to and including the 2018 amendments (resolution MSC.436(99))
SOLAS PROT 1988	up to and including the 2015 amendments (resolution MSC.395(95))
LLC 66	up to and including the 2005 amendments (resolution A.972(24))
LL PROT 1988	up to and including the 2014 amendments (resolution MSC.375(93))
MARPOL	up to and including the 2019 amendments (resolution MEPC.316(74))
BWM Convention	up to and including the 2018 amendments (resolution MEPC.299(72))
NO_X Technical Code 2008	up to and including the 2019 amendments (resolution MEPC.317(74))
IBC Code	up to and including the 2019 amendments (resolutions MEPC.318(74)/MSC.460(101))
IGC Code	up to and including the 2018 amendments (resolution MSC.441(99))
BCH Code	up to and including the 2019 amendments (resolutions MEPC.319(74)/MSC.463(101))
LSA Code	up to and including the 2017 amendments (resolution MSC. 425(98))
FSS Code	up to and including the 2016 amendments (resolution MSC. 410(97))
IGF Code	up to and including the 2017 amendments (resolution MSC.422(98))
Polar Code	adopted by resolutions MSC.385(94)/MEPC.264(68) in 2014/2015
BWMS Code	adopted by resolution MEPC.300(72) in 2018

Appendix 2

THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION

DIAGRAMMATIC ARRANGEMENT





Code of types of survey:

R	–	Renewal
P	–	Periodical
In	–	Intermediate
A	–	Annual

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* Items associated with the cargo ship safety construction intermediate survey that are additional to the requirements of the annual survey may, alternatively, be carried out at the second or third annual survey or between these surveys.

+ The cargo ship safety construction renewal survey may be commenced at the fourth annual survey and may be progressed during the succeeding year with a view to completion by the fifth anniversary date. The survey items of the fourth annual survey should not be credited to the completion of the renewal survey.