RESOLUTION A.560(14)

Adopted on 20 November 1985 Agenda item 10(b)

GUIDELINES ON SURVEYS REQUIRED BY THE 1978 SOLAS PROTOCOL, THE INTERNATIONAL BULK CHEMICAL CODE AND THE INTERNATIONAL GAS CARRIER CODE

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 concerning maritime safety,

NOTING that it adopted by resolution A.413(XI), subsequently amended by resolution A.465(XII), the Guidelines on Mandatory Annual Surveys, Unscheduled Inspections of All Cargo Ships as well as Intermediate Surveys on Tankers of Ten Years of Age and Over under the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974 (the 1978 SOLAS Protocol), which are intended to provide a general framework upon which Administrations will be able to base their arrangements for carrying out surveys and inspections,

NOTING FURTHER that the Maritime Safety Committee was requested to continue its work on this subject with a view to improving the Guidelines as may be necessary,

RECOGNIZING the need to further improve provisions of the Guidelines on Surveys under the 1978 SOLAS Protocol in respect of surveys of inert gas systems,

HAVING RECALLED that the Maritime Safety Committee adopted, by resolutions MSC.4(48) and MSC.5(48), the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code),

RECOGNIZING ALSO the need to provide guidelines for annual and intermediate surveys of chemical tankers and gas carriers constructed and equipped in accordance with the IBC and IGC Codes,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-first session,

- 1. ADOPTS the Guidelines on Surveys Required by the 1978 SOLAS Protocol, the International Bulk Chemical Code and the International Gas Carrier Code, as set out in the Annex to the present resolution, which supersede the Guidelines adopted by resolution A.413(XI) and the amendments thereto adopted by resolution A.465(XII);
- 2. INVITES Governments concerned to follow the Guidelines in conducting appropriate surveys;
- 3. REQUESTS the Maritime Safety Committee to keep the Guidelines under review for their further improvement.

ANNEX

GUIDELINES ON SURVEYS REQUIRED BY THE 1978 SOLAS PROTOCOL, THE INTERNATIONAL BULK CHEMICAL CODE AND THE INTERNATIONAL GAS CARRIER CODE

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PREAMBLE

- 1 Resolution 10 of the International Conference on Tanker Safety and Pollution Prevention, 1978, recommended that the International Maritime Organization develop guidelines for Administrations as to the extent, particulars and frequency of intermediate surveys and inspections of ships having due regard to their construction, machinery, equipment and age, and also containing requirements for the frequency and scope of unscheduled inspections and the scope of mandatory annual surveys conducted in lieu of unscheduled inspections. The Conference recognized that uniform requirements in this field would greatly assist Contracting Parties to the Protocol which are obliged to institute arrangements for conducting such surveys.
- Accordingly, such guidelines were developed to provide an agreed general standard for conducting mandatory annual surveys, unscheduled inspections of all cargo ships as well as intermediate surveys on tankers of 10 years of age and over, under the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974, and were adopted by the Assembly of the Organization by resolution A.413(XI) and subsequently amended by the Assembly by resolution A.465(XII).
- In respect of the alternatives of mandatory annual surveys and unscheduled inspections, the Maritime Safety Committee at its forty-fourth session urged Governments (circular letter No.817 dated 15 April 1981) to apply mandatory annual surveys only, having regard to the disadvantages of unscheduled inspections.
- 4 The revised guidelines for cargo ships under the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974, are set out in sections 3 to 6.
- The amendments to chapter VII of the 1974 SOLAS Convention adopted by the Maritime Safety Committee in 1983 require chemical tankers and gas carriers covered by the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) to be surveyed and certified as provided in these

codes in addition to meeting the requirements of regulations I/8, I/9 and I/10,* as applicable. Accordingly, survey provisions for chemical tankers and gas carriers have been included in the Guidelines in sections 7 to 11.

1 DEFINITIONS

For the purpose of these Guidelines and also for their applicability to the relevant conventions, protocol and codes, the following definitions apply:

- 1.1 *Initial survey* means a thorough and complete examination, and tests when required, of a ship and its equipment in accordance with the requirements of the appropriate convention or other instrument, to ensure that the relevant certificates may be issued for the first time.
- 1.2 **Periodical survey** means a thorough and complete examination, and tests when required, of a ship and its equipment in accordance with the requirements of the appropriate convention or other instrument, at specified regular intervals.
- 1.3 *Intermediate survey* means an examination of a ship and its equipment between the periodical surveys within specified periods.
- 1.4 *Mandatory annual survey* means a general examination of a ship and its equipment, conducted annually, which may include operational tests of the ship's systems and equipment to the extent necessary to confirm that the ship and its equipment remain satisfactory for the service for which the ship is intended.
- 1.5 *Additional survey* means a survey which is not an initial, periodical, intermediate or mandatory annual survey.
- 1.6 *Unscheduled inspection* means a general examination of a ship and its equipment, without prior notice to the owner or master, which may include operational tests of the ship's systems and equipment to the extent necessary to confirm that the ship and its equipment remain satisfactory for the service for which the ship is intended.

2 APPLICATION OF DEFINITIONS TO CONVENTIONS, PROTOCOL AND CODES

The definitions are applicable to the requirements of the 1974 SOLAS Convention as amended, the 1978 SOLAS Protocol, the 1966 Load Line Convention and Codes, as follows:

Terms used at present (if different)

2.1 Initial survey (definition 1.1)

SOLAS 1974, chapter I

Regulation 7(a)(i)

Survey before ship is put in service

Regulation 8 Regulation 9

Regulation 10 Survey on completion

^{*} Throughout the text of the Guidelines, cross-references are given in a concise form, e.g. regulation I/8(a) meaning regulation 8(a) of chapter I.

Load Line Convention

Article 14(1)(c)

Periodical inspection

Terms used at present (if different) 1978 SOLAS Protocol, chapter I Regulation 7(a)(i) Survey before ship is put in service Regulation 8(a) Regulation 9 Regulation 10(a) Survey on completion Load Line Convention Article 14(1)(a) Survey before ship is put in service **Bulk Chemical Code** Paragraph 1.6.1.1 Gas Carrier Code Paragraph 1.6.1(a) IBC Code/IGC Code Paragraph 1.5.2.1.1 2.2 Periodical survey (definition 1.2) SOLAS 1974, chapter I Regulation 7(a)(ii) Regulation 8 Subsequent survey Regulation 9 Subsequent survey Regulation 10 Thereafter in such manner and at such intervals as the Administration may consider necessary 1978 SOLAS Protocol, chapter I Regulation 7(a)(ii) Regulation 8(a) Subsequent survey Regulation 9 Subsequent survey Regulation 10(a)(i) Load Line Convention Article 14(1)(b) **Bulk Chemical Code** Paragraph 1.6.1.2 Gas Carrier Code Paragraph 1.6.1(b) IBC Code/IGC Code Paragraph 1.5.2.1.2 **2.3** Intermediate survey (definition 1.3) 1978 SOLAS Protocol, chapter I Regulation 8(b) Regulation 10(a)(ii) **Bulk Chemical Code** Paragraph 1.6.1.3 Gas Carrier Code Paragraph 1.6.1(c) IBC Code/IGC Code Paragraph 1.5.2.1.3 **2.4** Mandatory annual survey (definition 1.4) 1978 SOLAS Protocol, chapter I Regulation 6(b)

Terms used at present (if different)

Bulk Chemical Code

Paragraph 1.6.1.4

Gas Carrier Code

Paragraph 1.6.1(d)

IBC Code/IGC Code

Paragraph 1.5.2.1.4

2.5 Additional survey (definition 1.5)

SOLAS 1974, chapter I

Regulation 7(a)(iii)

1978 SOLAS Protocol, chapter I

Regulation 7(a)(iii)

Regulation 10(d)

Survey, either general or partial according to the circumstances

Bulk Chemical Code

Paragraph 1.6.1.5

Gas Carrier Code

Paragraph 1.6.1(e)

IBC Code/IGC Code

Paragraph 1.5.2.1.5

2.6 Unscheduled inspection (definition 1.6)

1978 SOLAS Protocol, chapter I

Regulation 6(b)

MANDATORY ANNUAL SURVEY OF ALL CARGO SHIPS (As required by regulation I/6(b) of the 1978 SOLAS Protocol)

3.1 Periodicity

- 3.1.1 The mandatory annual survey should be held within 3 months before or after the anniversary dates of the relevant Cargo Ship Safety Certificates, to ensure that the ship and its equipment as prescribed in regulations I/8(a) and I/10(b) of the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974 (the 1978 SOLAS Protocol), have been maintained in accordance with regulation I/11 of the 1978 SOLAS Protocol and that the ship and its equipment remain satisfactory for the service intended.
- 3.1.2 In those cases where the anniversary dates of the Cargo Ship Safety Construction Certificate and the Cargo Ship Safety Equipment Certificate do not coincide, the mandatory annual survey may be appropriately divided into two separate surveys to facilitate timely endorsement of the attachment to the applicable certificate.
- 3.1.3 When the date on which the mandatory annual survey for a tanker of 10 years of age and over is due coincides with the date of an intermediate survey as prescribed in either regulation I/8 or regulation I/10 of the 1978 SOLAS Protocol, the coinciding requirements of the two surveys may be satisfied by a single survey. However, care must be taken to ensure that those requirements of the mandatory annual survey which are outside the scope of the coinciding intermediate survey are also accomplished.

3.2 General

3.2.1 Where mandatory annual surveys are adopted by the Administration, they should

apply to all cargo ships issued with the Cargo Ship Safety Equipment Certificate and the Cargo Ship Safety Construction Certificate. The Administration, in guaranteeing the completeness and efficiency of the mandatory annual survey, should establish appropriate instructions and guidelines to enable officers of the Administration, nominated surveyors or recognized organizations to conduct the survey.

- 3.2.2 Mandatory annual surveys enable the Administration to verify that the condition of the ship, its machinery and equipment is being maintained in accordance with the relevant requirements of the 1978 SOLAS Protocol.
- 3.2.3 The guidelines contained in section 3.3 provide a general framework upon which Administrations will be able to base their arrangements for carrying out mandatory annual surveys. It is recognized that survey provisions contained in the Guidelines are not necessarily applicable to all types and sizes of ship.
- 3.2.4 In general, the scope of the mandatory annual survey should be as follows:
 - .1 it should consist of certificate examination, of a visual examination of a sufficient extent of the ship and its equipment and of 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 thoroughness or stringency of the survey should depend upon the condition of the ship and its equipment;
 - .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.

3.3 Survey

3.3.1 Examination of current certificates and of record books

- 3.3.1.1 The examination of current certificates and record books in general should consist of:
 - .1 checking the validity of all safety certificates issued in conformity with regulation I/12 of the 1974 SOLAS Convention and regulation I/14 of the 1978 SOLAS Protocol;
 - . 2 checking the validity of the International Load Line Certificate;
 - .3 checking the certificates of class, if the ship is classed with a classification society;
 - checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.
- 3.3.1.2 For hull, machinery and equipment of cargo ships the survey should consist of:
 - .1 checking whether the prescribed periodical surveys for the automatic/remote control systems such as the main propulsion automation system have been duly conducted;
 - .2 checking whether the prescribed periodical surveys for the inert gas system in tankers have been duly conducted;

- .3 checking that the log-book entries are being made, as required by regulation V/19-2(f) of the 1978 SOLAS Protocol.
- 3.3.1.3 For life-saving appliances and other equipment of cargo ships the survey should consist of:
 - .1 confirmation 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 Cargo Ship Safety Equipment Certificate;
 - .2 checking that all instructions and notices including emergency station muster list are properly posted and printed in a language understood by personnel on board;
 - .3 checking that log-book entries are being made, as required by regulation III/26 of the 1974 SOLAS Convention, and in particular:
 - .3.1 the date when the last full muster of the crew for boat and fire drill took place;
 - .3.2 the records indicating that the lifeboat equipment was examined at that time and found to be complete;
 - .3.3 the last occasion when the lifeboats were swung out and also which of them were lowered into the water;
 - .4 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.

3.3.2 Survey of hull, machinery and equipment of cargo ships

- 3.3.2.1 For the hull the survey should consist of:
 - .1 general examination of the hull and its closing appliances so far as can be seen;*
 - .2 examination of anchoring and mooring equipment as far as practicable;
 - .3 examination and testing (locally and remotely) of all watertight doors in watertight bulkheads, as far as practicable;
 - .4 examination of watertight bulkhead penetrations as far as practicable;
 - .5 confirmation as far as practicable that no significant changes have been made to the arrangement of structural fire protection;
 - .6 confirmation of the operation of manual and automatic fire doors where fitted.
- 3.3.2.2 For the machinery and electrical plant the survey should consist of:
 - .1 carrying out a general examination of machinery and boiler spaces with particular attention to the propulsion system, auxiliary machinery and the fire and explosion hazards; confirmation that emergency escape routes are not blocked:
 - .2 examination and testing in operation of all main and auxiliary steering arrangements, including their associated equipment and control systems;

^{*} For a ship to which an International Load Line Certificate is issued all closing appliances, scuppers and sanitary discharges and means for protection of the crew are inspected every year according to the requirements of the 1966 Load Line Convention.

- .3 testing of all the means of communication between the navigating bridge and the machinery control positions, as well as the bridge and the alternative steering position, if fitted;
- .4 examination, as far as practicable, of the bilge pumping systems and bilge wells including operation of pumps, remote reachrods and level alarms, where fitted;
- .5 external examination of boilers, pressure vessels and their appurtenances including safety devices, foundations, controls, relieving gear, high-pressure and steam-escape piping, insulation and gauges;
- .6 general examination visually and in operation, as feasible, of the electrical machinery, the emergency sources of electrical power, the switchgear and other electrical equipment;
- 7 confirmation as far as practicable of the operation of all emergency sources of power including, if they are automatic, their operation in the automatic mode.

3.3.3 Survey of life-saving appliances and other equipment of cargo ships

- 3.3.3.1 For the life-saving appliances the survey should consist of:
 - .1 examination of all lifeboats, davits, embarkation arrangements and launching gear in position, as far as practicable. If practicable, one of the lifeboats should be lowered to the water;
 - testing that the engine of each motor lifeboat starts satisfactorily, testing both ahead and astern operation (as permitted by cargo-handling conditions);
 - checking that the inflatable liferafts have been serviced during the past 12 months, unless it is determined that servicing has not been possible; checking that stowage will facilitate proper release and that launching instructions are posted. The embarkation arrangement of inflatable liferafts shall also be examined and, when provided, the launching arrangement of davit-launched liferafts;
 - . 4 checking that lifebuoys are in good condition and that the required number are fitted with self-igniting lights and self-activating smoke signals and that all are properly stationed;
 - .5 checking that rigid liferafts are in good condition and that stowage will facilitate rapid launching;
 - .6 checking for proper stowage of lifejackets and random examination of their condition;
 - .7 checking that ship and lifeboat distress signals and the line-throwing rockets are not out of date;
 - .8 testing of the emergency lighting and general alarm system.
- 3.3.3.2 For the fire-fighting equipment the survey should consist of:
 - .1 confirmation that fire control plans are properly posted:
 - .2 examination as far as possible and testing as feasible of the fire and smoke detection systems;
 - .3 examination of the fire-main system and confirmation that each fire pump including the emergency fire pump can be operated separately so that the two required powerful jets of water can be produced simultaneously from different hydrants;

- .4 confirmation that fire hoses, nozzles, applicators and spanners are in good working condition and situated at their respective locations;
- .5 examination of fixed fire-fighting system controls, piping, instructions and marking, checking for evidence of proper maintenance and servicing, including date of last systems tests;
- confirmation that all semi-portable and portable fire extinguishers are in their stowed positions, checking for evidence of proper maintenance and servicing, conducting random check for evidence of discharged containers;
- .7 confirmation, as far as practicable, that the remote controls for stopping fans and machinery and shutting off fuel supplies in machinery spaces are in working order;
- 8 examination of the closing arrangements of ventilators, funnel annular spaces, skylights, doorways and tunnel, where applicable;
- .9 confirmation that the firemen's outfits are complete and in good condition.
- 3.3.3.3 For the navigational equipment the survey should consist of:
 - .1 checking that navigational lights, shapes and sound signalling equipment are in order:
 - .2 checking that the compass deviation record book is properly maintained and that the daylight signalling lamp is in order;
 - .3 checking that the radar, echo-sounding device and gyro-compass are in working order;
 - .4 checking that pilot ladders/hoists are in good condition and operational;
 - .5 checking that nautical charts and publications necessary for the intended voyage are available and updated.

3.3.4 Additional requirements for tankers

- 3.3.4.1 For weather decks the survey should consist of:
 - .1 examination of cargo tank openings including gaskets, covers, coamings and screens;
 - .2 examination of cargo tank pressure/vacuum valves and flame screens:
 - .3 examination of flame screens on vents to all bunker, oily-ballast and oily-slop tanks and void spaces, as far as practicable;
 - .4 examination of cargo, crude oil washing, bunker, ballast and vent piping systems, including vent masts and headers;
 - .5 confirmation that all electrical equipment in dangerous zones is in good condition and has been properly maintained.
- 3.3.4.2 For cargo pump-rooms the survey should consist of:
 - .1 confirmation that potential sources of ignition in or near the cargo pump-room are eliminated, such as loose gear, excessive product in bilges, excessive vapours, combustible materials, etc., and that access ladders are in good condition;

- .2 confirmation that all electrical equipment is in good condition and has been properly maintained;
- .3 examination of all pump-room bulkheads for signs of oil leakage or fractures and, in particular, the sealing arrangements of all penetrations of pump-room bulkheads;
- .4 examination of the condition of all piping systems;
- .5 examination as far as practicable of cargo, bilge, ballast and stripping pumps for excessive gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of pump-room bilge system, and checking that pump foundations are intact;
- confirmation that the pump-room ventilation system is operational, ducting intact, dampers are operational and screens clean;
- .7 verification that installed pressure gauges on cargo discharge lines and level indicator systems are operational.
- 3.3.4.3 For the inert gas system, when fitted, the survey should consist of:
 - .1 external examination of the condition of all piping and components for signs of corrosion, gas leakage or effluent leakage;
 - .2 confirmation of the proper operation of both inert gas blowers;
 - .3 observation of the operation of the scrubber-room ventilation system;
 - .4 checking of deck water seal for automatic filling and draining and checking for presence of water carry-over and checking the condition of the nonreturn valve;
 - examination of the operation of all remotely operated or automatically controlled valves and, in particular, the flue gas isolating valves;
 - .6 observation of a test of the interlocking feature of soot blowers;
 - .7 observation that the gas pressure regulating valve automatically closes when the inert gas blowers are secured;
 - .8 checking as far as practicable the following alarms and safety devices of the inert gas system using simulated conditions where necessary:
 - .8.1 high oxygen content of gas in the inert gas main;
 - .8.2 low gas pressure in the inert gas main;
 - .8.3 low pressure in the supply to the deck water seal;
 - .8.4 high temperature of gas in the inert gas main;
 - .8.5 low pressure or low water-flow rate;
 - .8.6 accuracy of portable and fixed oxygen-measuring equipment by means of calibration gas;
 - .8.7 high water level in the scrubber:

- .8.8 failure of the inert gas blowers;
- .8.9 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;
- .8.10 high pressure of gas in the inert gas main;
- .9 checking, if possible, the proper operation of the inert gas system on completion of the checks listed above.
- 3.3.4.4 For other items the survey should also consist of:
 - .1 external examination of piping and cutout valves of cargo tank and cargo pumproom fixed fire-fighting system;
 - .2 confirmation that the deck foam system and deck sprinkler system are in sound operating condition.

3.4 Completion of survey

- 3.4.1 After satisfactory survey, the attachment to the Cargo Ship Safety Construction Certificate and/or the attachment to the Cargo Ship Safety Equipment Certificate should be endorsed.
- 3.4.2 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol.
- 4 UNSCHEDULED INSPECTION OF ALL CARGO SHIPS (As required by regulation I/6(b) of the 1978 SOLAS Protocol)
- 4.1 Unscheduled inspections of cargo ships should never be held in conjunction with any other survey or inspection.
- 4.2 Unscheduled inspections should be at least as extensive as mandatory annual surveys as required by section 3.3 and the scope of the inspection should be as follows:
 - .1 it should consist of certificate examination, of a visual examination of a sufficient extent of the ship and its equipment and of 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 thoroughness or stringency of the survey should depend upon the condition of the ship and its equipment;
 - .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.
- 4.3 Each Administration electing to conduct unscheduled inspections of cargo ships instead of mandatory annual surveys should ensure that at least 25% of all the cargo ships of less than 10 years of age and at least 50% of the cargo ships of 10 years of age and over registered

under the flag of its State should undergo a minimum of one unscheduled inspection each year. The Administration should designate the ships to undergo the unscheduled inspection. The method for designating the ships should be left to the Administration with due regard being given to historical information concerning material conditions and operational performance.

- 4.4 Administrations electing to conduct unscheduled inspections of cargo ships should, as soon as possible after 1 January of each year, inform the Organization of the number of such ships which have undergone unscheduled inspections during the previous year, indicating whether the requirements of paragraph 4.3 have been met.
- 4.5 After satisfactory inspection the attachment to the Cargo Ship Safety Construction Certificate and/or the attachment to the Cargo Ship Safety Equipment Certificate should be endorsed.
- 4.6 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol.
- 5 INTERMEDIATE SURVEY OF HULL, MACHINERY AND EQUIPMENT OF TANKERS OF 10 YEARS OF AGE AND OVER

5.1 Periodicity

As required by regulation I/10(a)(ii) of the 1978 SOLAS Protocol:

"A tanker of 10 years of age and over shall undergo a minimum of one intermediate survey during the period of validity of its Cargo Ship Safety Construction Certificate. In cases where only one such intermediate survey is carried out in any one certificate validity period, it shall be held not before 6 months prior to, nor later than 6 months after, the half-way date of the certificate's period of validity."

5.2 General

The intermediate survey should be a thorough examination and should be sufficiently extensive to enable the Administration to attest that the ship's degree of compliance with the Cargo Ship Safety Construction Certificate warrants the ship's continued possession of the certificate and further that the ship can continue to be operated with safety.

5.3 Survey

The intermediate survey of hull, machinery and equipment of tankers of 10 years of age and over should consist of all the relevant items required for the mandatory annual survey in section 3.3 as a minimum general framework and of additional items, as indicated below:

5.3.1 Examination of current certificates and of record books

The survey should consist of the provisions of 3.3.1.1 and 3.3.1.2.

5.3.2 Survey of hull

The survey should consist of the provisions of 3.3.2.1 and additionally of:

.1 examination of the shell including bottom and bow plating, keel, stem, stern frame and rudder;

- .2 noting the clearances measured in the rudder bearings;
- .3 examination of the sea connections and overboard discharge valves and their connections to the hull;
- .4 examination of anchoring and mooring equipment as far as practicable, for which purpose the anchors should be partially lowered and raised using the windlass;
- .5 examination of at least two selected cargo tanks internally.*

5.3.3 Survey of machinery and electrical plant

The survey should consist of the provisions of 3.3.2.2 and additionally of:

- .1 general examination of machinery and boiler spaces including tank tops, bilges and cofferdams, sea suctions and overboards with particular attention to the propulsion system and the fire and explosion hazards; confirmation that emergency escape routes are not blocked;
- .2 examination of the propeller and shaft seals as far as practicable;
- .3 noting the clearance measured in the propeller shafts;
- .4 ascertaining that the routine surveys of boilers and other pressure vessels as determined by the Administration have been carried out as required and that safety devices such as boiler safety devices have been tested;
- general examination of the electrical equipment and cables in dangerous zones such as cargo pump-rooms and areas adjacent to cargo tanks to check for defective equipment of a certified safe type, improperly installed wiring, non-approved lighting and fixtures and dead-ended wiring; testing the insulation resistance of the circuits. In cases where a proper record of testing is maintained, consideration should be given to accepting recent readings by the crew. If any of the readings are marginal or if the condition of the cables, fixtures or equipment appears defective in any way, verification measurements may be required. These measurements should not be attempted until the ship is in a gas-free or inerted condition and should be carried out within an acceptable time-period.

5.3.4 Survey of weather decks

The survey should consist of the provisions 3.3.4.1 and additionally of the examination of cargo, crude oil washing, bunker, ballast, steam and vent piping as well as vent masts and headers. If upon examination there is any doubt as to the condition of the piping, the piping may be required to be pressure-tested, gauged or both. Particular attention is to be paid to any repairs such as welded doublers.

5.3.5 Survey of cargo pump-rooms

The survey should consist of the provisions 3.3.4.2.

^{*} Cargo tanks are to be cleaned and the ship gas-freed to such an extent that the necessary surveys can be safely conducted, taking into account whether or not the ship is fitted with an inert gas system.

5.4 Completion of survey

- 5.4.1 After satisfactory survey the supplement to the Cargo Ship Safety Construction Certificate should be endorsed.
- 5.4.2 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol.
- 6 INTERMEDIATE SURVEY OF LIFE-SAVING APPLIANCES AND OTHER EQUIPMENT OF TANKERS OF 10 YEARS OF AGE AND OVER

6.1 Periodicity

As required by regulation I/8(b) of the 1978 SOLAS Protocol:

"Intermediate surveys shall be made for tankers of 10 years of age and over, within 3 months before or after the anniversary date of the Cargo Ship Safety Equipment Certificate, to ensure that equipment specified in paragraph (a) of this regulation has been maintained in accordance with regulation 11 of this chapter and that it is in good working condition. Such intermediate surveys shall be endorsed on the Cargo Ship Safety Equipment Certificate issued in accordance with regulation 12(a)(iii) of chapter I of the Convention."

6.2 General

The intermediate survey should be sufficiently extensive to enable the Administration to attest that the ship's degree of compliance with the Cargo Ship Safety Equipment Certificate warrants the ship's continued possession of the certificate and further that the ship can continue to be operated with safety.

6.3 Survey

The intermediate survey of life-saving appliances and other equipment of tankers of 10 years of age and over should consist of all the relevant items as required for the mandatory annual survey in section 3.3, as a minimum general framework, as indicated below:

- .1 examination of current certificates and of record books (cf. 3.3.1.1 and 3.3.1.3);
- .2 survey of life-saving appliances (cf. 3.3.3.1);
- .3 survey of fire-fighting equipment (cf. 3.3.3.2);
- .4 survey of navigational equipment (cf. 3.3.3.3);
- .5 survey of inert gas system (cf. 3.3.4.3);
- .6 other items (cf. 3.3.4.4).

6.4 Completion of survey

6.4.1 After satisfactory survey the supplement to the Cargo Ship Safety Equipment Certificate should be endorsed.

- 6.4.2 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be quided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol.
- 7 SURVEYS OF CHEMICAL TANKERS AND GAS CARRIERS UNDER THE IBC AND IGC CODES

The structure, equipment, fittings, arrangements and material of a chemical tanker or gas carrier (other than items in respect of which a Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate, Cargo Ship Safety Radiotelegraphy Certificate or Cargo Ship Safety Radiotelephony Certificate is issued) should be subject to the surveys described in sections 8 to 11.

8 MANDATORY ANNUAL SURVEY OF CHEMICAL TANKERS

8.1 Periodicity

- 8.1.1 The mandatory annual survey should be held within 3 months before or after the anniversary date of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk to ensure that the structure, equipment, fittings, arrangements and materials remain in all respects satisfactory for the service for which the ship is intended.
- 8.1.2 When the date for the mandatory annual survey coincides with the date of the intermediate survey (see 10.1), the requirements may be satisfied by a single survey.

8.2 General

- 8.2.1 Mandatory annual surveys enable the Administration to verify that the condition of the structure, equipment, fittings, arrangements and materials is being maintained in accordance with the requirements of the IBC Code.
- 8.2.2 The guidelines contained in section 8.3 provide a general framework upon which the Administration will be able to base its arrangements for carrying out mandatory annual surveys.
- 8.2.3 In general, the scope of the mandatory annual survey should be as follows:
 - .1 it should consist of certificate examination, of a visual examination of a sufficient extent of the ship and its equipment and of 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 thoroughness or stringency of the survey should depend upon the condition of the ship and its equipment;
 - .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.

8.3 Survey

- 8.3.1 The examination of current certificates and record books in general should consist of:
 - .1 checking the validity of all safety certificates issued in conformity with regulation I/12 of the 1974 SOLAS Convention and regulation I/14 of the 1978 SOLAS Protocol if appropriate;
 - .2 checking the validity of the International Load Line Certificate;
 - .3 checking the certificates of class, if the ship is classed with a classification society;
 - .4 checking the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.
- 8.3.2 For weather decks the survey should consist of:
 - .1 examination of gauging devices, high-level alarms and valves associated with overflow control;
 - .2 confirmation that any devices provided for measuring the temperature of the cargo and any associated alarms are satisfactory;
 - .3 examination of the cargo heating/cooling system sampling arrangements where required;
 - .4 confirmation that wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends facing the cargo area are in good condition;
 - .5 confirmation that pump discharge pressure gauges fitted outside the cargo pumprooms are satisfactory;
 - .6 confirmation that pumps, valves and pipelines are identified and distinctively marked.
- 8.3.3 For cargo pump-rooms and other cargo handling spaces the survey should consist of:
 - .1 confirmation that the remote operation of the cargo pump-room bilge system is satisfactory;
 - .2 confirmation that cargo pump-room rescue arrangements are in order;
 - .3 confirmation that removable pipe lengths or other approved equipment necessary for cargo separation are available and satisfactory;
 - .4 confirmation that the ventilation system including portable equipment, if any, of other spaces in the cargo area is satisfactory.
- 8.3.4 For inert/padding/drying gas systems the survey should consist of:
 - .1 confirmation that arrangements are made for sufficient gas to be carried to compensate for normal losses and that means are provided for monitoring ullage spaces;
 - confirmation that arrangements are made for sufficient medium to be carried where drying agents are used on air inlets to cargo tanks.

- 8.3.5 For the protection of personnel, the survey should consist of:
 - .1 confirmation that suitable protective clothing is available for crew engaged in loading and discharging operations and that suitable storage is maintained;
 - .2 confirmation that the requisite safety equipment and associated breathing apparatus with requisite air supplies and emergency-escape respiratory and eye protection, if required, are satisfactory and properly stowed;
 - .3 confirmation that medical first-aid equipment including stretchers and oxygen resuscitation equipment is satisfactory and that satisfactory arrangements are made for antidotes for cargoes actually carried to be on board;
 - .4 confirmation that decontamination arrangements and eyewashes are operational;
 - .5 confirmation that the required gas detection instruments are on board and that satisfactory arrangements are made for the supply of any required vapour detection tubes.
- 8.3.6 For other items, the survey should consist of:
 - .1 confirmation that the cargo sample stowage arrangements are in satisfactory condition;
 - .2 confirmation that any special arrangements to survive conditions of damage are in order;
 - .3 confirmation that any special arrangements made for bow or stern loading and unloading are in satisfactory condition;
 - .4 confirmation that, if applicable, the provisions made for products are in accordance with the special requirements for certain cargoes listed in the IBC Code;
 - .5 confirmation that a copy of the IBC Code or national regulations incorporating the provisions of this Code together with the required data for safe carriage of the cargoes are on board.

8.4 Completion of survey

- 8.4.1 After satisfactory survey, the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk should be endorsed.
- 8.4.2 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol, if appropriate.
- 9 MANDATORY ANNUAL SURVEY OF GAS CARRIERS

9.1 Periodicity

9.1.1 The mandatory annual survey should be held within 3 months before or after the anniversary date of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk to ensure that the structure, equipment, fittings, arrangements and materials remain in all respects satisfactory for the service for which the ship is intended.

9.1.2 When the date for the mandatory annual survey coincides with the date of the intermediate survey (see 11.1), the requirements may be satisfied by a single survey.

9.2 General

- 9.2.1 Mandatory annual surveys enable the Administration to verify that the condition of the structure, equipment, fittings, arrangements and materials is being maintained in accordance with the requirements of the IGC Code.
- 9.2.2 The guidelines contained in section 9.3 provide a general framework upon which the Administration will be able to base its arrangements for carrying out mandatory annual surveys.
- 9.2.3 In general, the scope of the mandatory annual survey should be as follows:
 - it should consist of certificate examination, of a visual examination of a sufficient extent of the ship and its equipment and of 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 thoroughness or stringency of the survey should depend upon the condition of the ship and its equipment;
 - .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.
- 9.2.4 The mandatory annual survey should normally be carried out at cargo loading or discharge.

9.3 Survey

- 9.3.1 The examination of current certificates and record books in general should consist of:
 - .1 checking the validity of all safety certificates issued in conformity with regulation I/12 of the 1974 SOLAS Convention and regulation I/14 of the 1978 SOLAS Protocol, if appropriate;
 - .2 checking the validity of the International Load Line Certificate;
 - .3 checking the certificates of class, if the ship is classed with a classification society;
 - .4 checking the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk:
 - .5 checking the cargo log-book and operational records and manual related to the cargo containment system.
- 9.3.2 For weather decks the survey should consist of:
 - .1 confirmation that the sealing arrangements at gas domes are satisfactory;
 - 2 confirmation that wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends facing the cargo area are in good condition;

- .3 confirmation that ventilation systems, airlocks to working spaces and accommodation ventilation closing arrangements are satisfactory;
- .4 examination of closing and other arrangements of any special enclosed space provided for the protection of the crew in the event of a major cargo release;
- .5 confirmation that portable ventilation provided for spaces not normally entered is satisfactory;
- .6 confirmation that portable or fixed drip trays or deck insulation for cargo leakage are in order;
- .7 verification that cargo tank liquid level gauges are operational and that high-level alarms and automatic high-liquid-level shutoff systems are satisfactory;
- .8 confirmation that the manually operated emergency shutdown system together with automatic shutdown of cargo pumps and compressors are satisfactory;
- .9 examination of cargo, bunker, ballast and vent piping systems including vent masts and protective screens as far as practicable;
- .10 confirmation that cargo tank and interbarrier space pressure and vacuum relief valves including safety systems and alarms are satisfactory;
- .11 confirmation that electrical equipment in gas-dangerous spaces and zones is in good condition and properly maintained.
- 9.3.3 For cargo pump and compressor rooms, other cargo-handling and control rooms and other spaces specified in paragraph 13.6.7.5 of the IGC Code as appropriate the survey should consist of:
 - .1 confirmation that cargo gas leakage detection equipment has been tested and calibrated using span gas and that alarms have been tested;
 - .2 confirmation that the cargo containment system temperature indicating equipment and any associated alarms are satisfactory;
 - .3 confirmation that the pressure gauging system for cargo tanks, holds and insulation spaces is satisfactory;
 - .4 confirmation that removable pipe lengths or other approved equipment necessary for cargo separation are available and satisfactory.
- 9.3.4 For the inert/drying gas system the survey should consist of:
 - .1 confirmation that arrangements are made for sufficient gas to be carried to compensate for normal losses and that means are provided for monitoring spaces;
 - .2 confirmation that any air drying system and interbarrier and hold space purging inert gas system are satisfactory.
- 9.3.5 For the protection of personnel the survey should consist of:
 - .1 confirmation that suitable protective clothing is available for crew engaged in loading and discharging operations and that suitable storage is maintained;

- confirmation that the requisite safety equipment and associated breathing apparatus with requisite air supplies and emergency-escape respiratory and eye protection, if required, are satisfactory and properly stowed;
- .3 confirmation that medical first-aid equipment including stretchers and oxygen resuscitation equipment is satisfactory and that satisfactory arrangements are made for antidotes for cargoes actually carried to be on board;
- .4 confirmation that decontamination arrangements and eyewashes are operational.
- 9.3.6 For fire protection and extinguishing the survey should consist of:
 - .1 confirmation that the water-spray system is satisfactory;
 - .2 confirmation that the dry powder extinguishing system is satisfactory.
- 9.3.7 For other items the survey should consist of:
 - .1 confirmation that any special arrangements to survive conditions of damage are in order;
 - .2 confirmation that cargo reliquefaction or refrigeration equipment, if fitted, is in satisfactory condition;
 - .3 confirmation that any equipment fitted for burning the boil-off gas is satisfactory;
 - .4 confirmation that any special arrangements made for bow or stern loading and unloading are in satisfactory condition;
 - .5 confirmation that, if applicable, the provisions made for products are in accordance with the special requirements for certain cargoes listed in the IGC Code;
 - .6 confirmation that a copy of the IGC Code or national regulations incorporating the provisions of this Code together with the required data for safe carriage of the cargoes are on board.

9.4 Completion of survey

- 9.4.1 After satisfactory survey, the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk should be endorsed.
- 9.4.2 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be quided by the requirements of regulation I/6(d) of the 1978 SOLAS Protocol, if appropriate.

10 INTERMEDIATE SURVEY OF CHEMICAL TANKERS

10.1 Periodicity

As required by 1.5.2.1.3 of chapter I of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, a chemical tanker should be subject to:

"A minimum of one intermediate survey during the period of validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk. In cases where

only one such intermediate survey is carried out in any one certificate validity period, it should be held not before 6 months prior to, nor later than 6 months after, the half-way date of the certificate's period of validity."

10.2 General

The intermediate survey should be a thorough examination and should be sufficiently extensive to enable the Administration to attest that the ship's degree of compliance with the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk warrants the ship's continued possession of the certificate and further that the ship can continue to be operated with safety.

10.3 Survey

- 10.3.1 The intermediate survey of chemical tankers should consist of all the relevant items required for the mandatory annual survey in 8.3 as a minimum general framework and of additional items, as indicated below:
 - .1 examination of vent line drainage arrangements;
 - .2 confirmation that the cargo heating/cooling system is in satisfactory condition;
 - .3 confirmation that the ship's cargo hoses are approved and in satisfactory condition;
 - .4 confirmation, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull;
 - .5 general examination of the electrical equipment and cables in dangerous zones such as cargo pump-rooms and areas adjacent to cargo tanks to check for defective equipment of a certified safe type, improperly installed wiring, non-approved lighting and fixtures and dead-end wiring; testing the insulation resistance of the circuits. In cases where a proper record of testing is maintained, consideration should be given to accepting recent readings by the crew. If any of the readings are marginal or if the condition of the cables, fixtures or equipment appears defective in any way, verification measurements may be required. These measurements should not be attempted until the ship is in a gas-free or inerted condition and should be carried out within an acceptable time-period;
 - .6 confirmation that spares are provided for cargo area mechanical ventilation fans.
- 10.3.2 Where the 1978 SOLAS Protocol applies, a chemical tanker of 10 years of age and over should be subject to internal examination of two selected spaces within the cargo area, such spaces being integral with the hull, which may include double bottoms, if fitted.

10.4 Completion of survey

The provisions of 8.4 should be applied.

11 INTERMEDIATE SURVEY OF GAS CARRIERS

11.1 Periodicity

As required by I.5.2.1.3. of chapter I of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, a gas carrier should be subject to:

"A minimum of one intermediate survey during the period of validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk. In cases where only one such intermediate survey is carried out in any one certificate validity period, it should be held not before 6 months prior to, nor later than 6 months after, the half-way date of the certificate's period of validity."

11.2 General

The intermediate survey should be a thorough examination and should be sufficiently extensive to enable the Administration to attest that the ship's degree of compliance with the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk warrants the ship's continued possession of the certificate and further that the ship can continue to be operated with safety.

11.3 Survey

- 11.3.1 The intermediate survey of gas carriers should consist of all the relevant items required for the mandatory annual survey in 9.3 as a minimum general framework and of additional items, as indicated below:
 - .1 examination of the means for draining the vent piping system;
 - .2 confirmation that ship's cargo hoses are approved and in satisfactory condition;
 - .3 confirmation that pipelines and cargo tanks are electrically bonded to the hull;
 - general examination of the electrical equipment and cables in gas-dangerous spaces or zones such as cargo pump-rooms and areas adjacent to cargo tanks to check for defective equipment of a certified safe type, improperly installed wiring, non-approved lighting and fixtures and dead-end wiring; testing the insulation resistance of the circuits. In cases where a proper record of testing is maintained, consideration should be given to accepting recent readings by the crew. If any of the readings are marginal or if the condition of the cables, fixtures or equipment appears defective in any way, verification measurements may be required. These measurements should not be attempted until the ship is in a gas-free or inerted condition and should be carried out within an acceptable time-period;
 - .5 confirmation that the heating arrangements, if any, for steel structures are satisfactory;
 - .6 confirmation that spares are provided for cargo area mechanical ventilation fans.
- 11.3.2 Where the 1978 SOLAS Protocol applies, a gas carrier of 10 years of age and over and carrying cargoes not listed in chapter 19 of the IGC Code should be subject to internal examination of two selected spaces within the cargo area, such spaces being integral with the hull, which may include double bottoms, if fitted.

11.4 Completion of survey

The provisions of 9.4 should be applied.

APPENDIX 1

FORM OF ATTACHMENT TO THE CARGO SHIP SAFETY EQUIPMENT CERTIFICATE

(Official seal) (Country)

Issued under the requirements of the PROTOCOL OF 1978 RELATING TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974¹

Name of ship	Distinctive number or letters	Gross tonnage	Year of build			
In implementation Convention for the Sa of	fety of Life at Sea,	f the Protocol of 1978 rela 1974 (1978 SOLAS Prot has instituted:	ating to the International tocol), the Government			
 Mandatory and 	nual surveys ^{2 3}					
 Unscheduled inspections ² 						
This is to certify to the 1978 SOLAS FA.560(14).	hat the ship has bee Protocol and the app	n surveyed in accordanc propriate provisions of th	e with regulation I/6(b) he Annex to resolution			
Mandatory annual sur	vey ^{2 3} Sign	ned:				
Unscheduled inspection	on ² Plac	Place:				
		e:al or stamp of the auth				
Issued at(Place of issu	e of attachment)					
	19	(Signatui	re of duly authorized suing the attachment)			

This attachment shall be attached to a SOLAS 1974 Certificate and shall expire on the same day as the certificate to which it is attached.

² Delete as appropriate.

An intermediate survey, but not an unscheduled inspection, may take the place of a mandatory annual survey.

APPENDIX 2

FORM OF ATTACHMENT TO THE CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE

(Country) (Official seal)

> Issued under the requirements of the PROTOCOL OF 1978 RELATING TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974¹

> > Distinctive number

Name of ship	Distinctive num or letters		ber Gross tonnage		Year of build	
In implementation Convention for the Sa of	fety of Life at S	Sea, 19	74 (1978 SO	LAS Prot	ting to the International ocol), the Government	
 Mandatory and 						
 Unscheduled in 	nspections 2					
This is to certify the 1978 SOLAS Protoc	at the ship has ol and the appr	been su opriate p	rveyed in acc provisions of th	ordance v ie Annex t	vith regulation I/6(b) of o resolution A.560(14).	
1st mandatory annual	survey ^{2 3}	Signe	d:t			
1st unscheduled inspection ²			Place:			
					ority, as appropriate)	
2nd mandatory annua	Signed:					
2nd unscheduled inspe	Place:					
					ority, as appropriate)	
3rd mandatory annual	survey ^{2 3}	Signe	d::t	• • • • • • • • • • • • • • • • • • • •		
3rd unscheduled inspe	Place:					
		Date: <i>(Seal</i>	or stamp of	the auth	ority, as appropriate)	
4th mandatory annual	survey ^{2 3}	Signe	d:			
4th unscheduled inspe	Place:					
					ority, as appropriate)	
Issued at(Place of issu	e of attachme					
		19	(e of duly authorized uing the attachment)	

This attachment shall be attached to a SOLAS 1974 Certificate and shall expire on the same day as the certificate to which it is attached.

Delete as appropriate.

An intermediate survey, but not an unscheduled inspection, may take the place of a mandatory annual survey.