

RESOLUTION MEPC.99(48)  
Adopted on 11 October 2002  
AMENDMENTS TO THE CONDITION ASSESSMENT SCHEME

**RESOLUTION MEPC.99(48)**

**Adopted on 11 October 2002**

**AMENDMENTS TO THE CONDITION ASSESSMENT SCHEME**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the “1973 Convention”) and article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the “1978 Protocol”) which together specify the amendment procedure of the 1978 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 Protocol (MARPOL 73/78),

NOTING ALSO that regulation 13G(7) of Annex I of MARPOL 73/78 specifies that the Condition Assessment Scheme, adopted by resolution MEPC.94(46), may be amended provided such amendments shall be adopted, brought into force and take effect in accordance with the provisions of article 16 of the 1973 Convention relating to amendment procedures applicable to an appendix to an Annex,

HAVING CONSIDERED, at its forty-eighth session, the proposed amendments to the Condition Assessment Scheme adopted by resolution MEPC.94(46),

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to the Condition Assessment Scheme, the text of which is set out at Annex to the present resolution;
2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 September 2003, unless, prior to that date, not less than one third of the Parties to MARPOL 73/78 or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world’s merchant fleet, have notified to the Organization their objections to the amendments;
3. INVITES Parties to MARPOL 73/78 to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 March 2004 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments contained in the Annex;
5. REQUESTS FURTHER the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization which are not Parties to MARPOL 73/78; and
6. INVITES the Maritime Safety Committee to note the amendments to the Condition Assessment Scheme.

## ANNEX

### AMENDMENTS TO THE CONDITION ASSESSMENT SCHEME

- 1 The following new paragraph is added after the existing paragraph 6.2.2.13:  
  
“6.2.3 The Survey Plan shall be developed using the Model Survey Plan for CAS set out in Appendix 3.”
- 2 The following text is added after the existing paragraph 6.3.2:  
  
“6.4 Conduct of CAS Surveys  
  
6.4.1 The conditions for CAS Survey, the conditions and method of access to the structures, the equipment for CAS Survey and the communication arrangements implemented during the CAS Survey shall meet the Mandatory Requirements for the Safe Conduct of CAS Surveys set out in Appendix 4.”
- 3 In Table 7.2.2, the note, at the end of the entry “A minimum of 30% of all web frames and rings, in each remaining cargo wing tank” is replaced by “(see note 1 and 3)”.
- 4 In Table 7.2.2 at the end of the entry “A minimum of 30% of deck and bottom transverses, including adjacent structural members, in each cargo centre tank” the following text is added “(see note 3)”.
- 5 In Table 7.2.2, at the bottom of the table, after the existing Note 2 the following new note is added:  
  
“3 The 30% shall be rounded up to the next whole integer.”
- 6 The following new Appendices are added after the existing Appendix 2:

## “APPENDIX 3

### Model Survey Plan for CAS

#### Basic Information and Particulars

Name of Ship	:
IMO Number	:
Flag State	:
Port of Registry	:
Gross Tonnage	:
Deadweight (metric tonnes)	:
Length Between Perpendiculars (m)	:
Breadth (m)	:
Depth (m)	:
Summer load line draught (m)	:
Builder	:
Hull Number	:
Recognised Organisation (RO)	:
RO Identity	:
Class Notation	:
Date of delivery	:
Category of Ship (1 or 2)	:
Date for compliance with Regulation 13F	:
Company	:
Thickness Measurement Firm	:

#### 1 Preamble

##### 1.1 Scope

1.1.1 The present CAS Survey Plan covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo area, ballast tanks, including fore and aft peak tanks, required by the CAS adopted by resolution MEPC.94(46), as amended by resolution MEPC.99(48), for this ship.

1.1.2 The practical aspects of any part of the CAS survey shall be acceptable to the attending surveyor(s).

##### 1.2 Documentation

All documents used in the development of the CAS survey plan shall be available onboard during the CAS survey as required by paragraph 6.3.1 of the CAS.

## **2 Arrangement of Tanks**

This section of the Plan shall provide information (either in the form of plans or text) on the arrangement of tanks that fall within the scope of the CAS survey.

## **3 List of tanks with information on their use, extent of coatings and corrosion protection system**

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

## **4 Conditions for survey (e.g. information regarding tank cleaning, gas freeing, ventilation, lighting etc.)**

This section of the Plan shall indicate any changes relating to (and shall update) the information on the conditions for survey provided in the Survey Planning Questionnaire.

## **5 Provisions and method of access to structures**

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

The Mandatory Requirements for the Safe Conduct of CAS Surveys are contained in Appendix 3 to this Plan.

## **6 List of equipment for survey (to be provided by the Company and supplemented by the Recognised Organisation, as necessary)**

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

## **7 Survey requirements**

### **7.1 Overall survey**

#### *The CAS requirements*

Paragraph 7.2.1 (and 5.2) of the CAS require that the hull structures in way of cargo tanks, pump rooms, cofferdams, pipe tunnels, void spaces within the cargo area and all ballast tanks shall undergo an overall survey.

#### *The Plan*

This section of the Plan shall identify and list the spaces that shall undergo an overall survey for this ship.

## 7.2 Close up survey

### *The CAS requirements*

Paragraph 7.2.2 (and Table 7.2.2) of the CAS state the hull structures that shall undergo a close up survey. These are:

<b>Close up survey requirements</b>
All web frame rings, in all ballast tanks (see note 1)
All web frame rings, in a cargo wing tank, (see note 1)
A minimum of 30% of all web frame rings, in each remaining cargo wing tank (see notes 1 and 3)
All transverse bulkheads, in all cargo and ballast tanks (see note 2)
A minimum of 30 % of the deck and bottom transverses, including adjacent structural members, in each cargo centre tank (see note 3)
Additional complete transverse web frame rings or deck and bottom transverse including adjacent structural members as considered necessary by the surveyor

Notes:

- 1 Complete transverse web frame ring including adjacent structural member.
- 2 Complete transverse bulkhead, including girder and stiffener systems and adjacent members
- 3 The 30% shall be rounded up to the next whole integer.

In addition paragraphs 7.2.3 and 7.2.4 of the CAS provide further guidance as far as the extent and scope of the close up survey.

### *The Plan*

This section of the Plan shall identify and list, using paragraph 7.2.2 (and Table 7.2.2) of the CAS, the hull structures that shall undergo a close up survey for this ship. In particular it shall:

- .1 identify the cargo wing tank in which all web frame rings will undergo close up survey and indicate the number of web frame rings involved;
- .2 identify the remaining cargo wing tanks in which a minimum of 30 % of the web frame rings will undergo a close up survey and indicate, for each tank, the number of web frame rings involved; and
- .3 identify the cargo centre tanks in which a minimum of 30 % of the deck and bottom transverses, including adjacent structural members, in each cargo centre tank will undergo close up survey and indicate, for each tank, the number of the deck and bottom transverses, including adjacent structural members, involved.

## 8 Identifications of tanks for tank testing

### *The CAS requirements*

Paragraph 6.2.2.9 of the CAS states that the tank testing shall be as per annex 3 of Annex B of resolution A.744(18) as amended.

### *The Plan*

This section of the Plan shall identify and list the tanks that shall undergo tank testing for this ship.

## **9 Identification of areas and sections for thickness measurements**

### *The CAS requirements*

Paragraph 7.3.3 (and Table 7.3.3) of the CAS specify the minimum requirements for thickness measurements for CAS survey. These are as follows:

<b>Thickness measurement requirements</b>	
1. Within the cargo area:	
.1 Each deck plate	
.2 Three transverse sections	
.3 Each bottom plate	
2. Measurements of structural members subject to close-up survey according to the table above (for close up survey), for general assessment and recording of corrosion pattern	
3. Suspect areas	
4. Selected wind and water strakes outside the cargo area	
5. All wind and water strakes within the cargo area	
6. Internal structure in the fore and aft peak tanks	
7. All exposed main deck plates outside the cargo area and all exposed first tier superstructure deck plates	

#### Guidance Notes:

- 1 The attending surveyor(s) may increase the extent of thickness measurements as deemed necessary (see paragraph 7.3.5 of the CAS).
- 2 Transverse sections for thickness measurements shall be chosen where the largest material reductions are expected to occur or are revealed from deck plating measurements (see section 7.3.8 of the CAS).
- 3 Where substantial corrosion is found, the extent of thickness measurements shall be increased accordingly (see paragraph 7.3.4 of the CAS).

In addition paragraphs 7.3.4 to 7.3.8 of the CAS provide further guidance on the extent and increase of the thickness measurements to be taken.

### *The Plan*

This section of the Plan shall identify and list, using paragraph 7.3.3 (and Table 7.3.3) of the CAS, the areas and sections where thickness measurements shall be taken.

## **10 Hull Materials (to be specified by the Recognised Organisation)**

This section of the Plan shall identify, using a format similar to that of the table below, the materials used in the hull structures that fall within the scope of the CAS for the purpose of providing a concise reference.

Location	Plating	Longitudinals and Stiffeners	Longitudinal Girders / Stringers	Transverse Girders / Web Frames / Stringers / Floors
Deck				
Bottom				
Inner bottom				
Side shell				
Longitudinal bulkhead				
Transverse bulkheads				
Fore Peak				
Aft Peak				

Guidance Notes:

- 1 Material grade is Mild Steel (MS) where not shown otherwise.
- 2 Material grade HTS indicates High Tensile Steel; SS indicates Stainless Steel; and CS indicates Clad Steel.
- 3 In case of repairs, material, grade, type and the extent shall be verified from drawings.

## 11 Minimum thickness of hull structures (to be specified by the Recognised Organisation)

This section of the Plan shall specify the minimum thickness\* for hull structures of this ship that are subject to the CAS (indicate either (a) or preferably (b), if such information are available):

- (a) ☐ Determined from the attached\* wastage allowance table and the original thickness according to the hull structure plans of the ship;
- (b) ☐ Given in the following table(s)

Area or Location	Original Thickness (mm)	Minimum Thickness (mm)	Substantial Corrosion Thickness (mm)
<b>Deck</b>			
Plating			
Longitudinals			
Longitudinal girders			
<b>Bottom</b>			
Plating			
Longitudinals			
Longitudinal girders			
<b>Ship side</b>			
Plating			
Longitudinals			
Longitudinal girders			
<b>Longitudinal bulkhead</b>			
Plating			
Longitudinals			
Longitudinal girders			
<b>Inner bottom</b>			
Plating			
Longitudinals			
Longitudinal girders			
<b>Transverse bulkheads</b>			

\* The wastage allowance tables shall be attached to the CAS Survey Plan.



Plating			
Stiffeners			
<b>Transverse web frames, floors and stringers</b>			
Plating			
Flanges			
Stiffeners			
<b>Cross ties</b>			
Flanges			
Webs			

## 12 Thickness Measurement (TM) Firm

This section of the Plan shall identify changes, if any, relating to the information on the Thickness Measurement (TM) Firm provided in the Survey Planning Questionnaire.

### 13 Damage experience related to the ship

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

Hull damages sorted by location for this ship

(to be provided by the Company and supplemented by the Recognised Organisation, as necessary)

[illegible]

Hull damages for sister or similar ships (if available) in the case of design related damage  
(to be provided by the Company and supplemented by the Recognised Organisation, as necessary)

Tank Number or Area	Possible cause if known	Description of the damages	Location	Repair	Date of repair

**14 Areas identified with substantial corrosion from previous surveys** (to be provided by the Recognised Organisation)

This section of the Plan shall identify and list the areas of substantial corrosion from previous surveys.

**15 Critical structural areas and suspect areas** (to be provided by Company and supplemented by the Recognised Organisation, as necessary)

This section of the Plan shall identify and list the critical structural areas and the suspect areas, when such information is available.

**16 Other relevant comments and information** (to be provided by the Company and supplemented by the Recognised Organisation)

This section of the Plan shall provide any other relevant, to the CAS survey, comments and information.

## Appendices

### Appendix 1 - List of Plans

Paragraph 6.2.2.2 of CAS requires that main structural plans of cargo and ballast tanks (scantling drawings), including information on regarding use of high tensile steel (HTS) to be provided.

This Appendix of the Plan shall identify and list the main structural plans which form part of the Plan and which are attached to the Plan.

### Appendix 2 - Survey Planning Questionnaire

The Survey Planning Questionnaire, which has been submitted by the Company, shall be appended to the Plan.

### **Appendix 3 – Mandatory Requirements for the Safe Conduct of CAS Surveys**

The Mandatory Requirement for the Safe Conduct of CAS Surveys, which is contained in Appendix 4 shall be appended to the Plan.

### **Appendix 4 - CAS Schedule**

The CAS Schedule shall be attached to the Plan.

### **Appendix 5 - Other documentation**

This part of the Plan shall identify and list any other documentation that forms part of the Plan.

Prepared on behalf of the Company by .....

Date:.....

.....  
(name and signature of authorised representative)

Reviewed by the Recognized Organization for compliance with paragraph 6.2.2 of the CAS.

Date:.....

.....  
(name and signature of authorised representative)

## APPENDIX 4

### **Mandatory Requirements for the Safe Conduct of CAS Surveys**

#### **1 General**

1.1 The present mandatory requirements have been developed for the safe conduct of CAS Surveys. Although the mandatory requirements make explicit reference to the CAS survey and to attending surveyor(s) it shall be used also in connection with any thickness measurement work required by the CAS.

#### **2 Conditions for survey**

2.1 The Company shall provide the necessary facilities for a safe conduct of the CAS survey.

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

2.3 In order to enable the attending surveyors to carry out the CAS survey, provisions for proper and safe access, shall be agreed between Company and Recognised Organisation.

2.4 Details of the means of access are provided in the Survey Planning Questionnaire.

2.5 Tanks and spaces shall be safe for access. Tanks and spaces shall be gas free and shall be ventilated. Prior to entering a tank, void or enclosed space, it shall be verified that the atmosphere in the tank is free from hazardous gas and contains sufficient oxygen.

2.6 Tanks and spaces shall be sufficiently clean and free from water, scale, dirt, oil residues, corrosion scale, sediments etc., to reveal significant corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

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

2.8 Where soft coatings have been applied, safe access shall be provided for the attending surveyor(s) to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures, which may include spot removal of the coating. Where the presence of soft coating inhibits safe access, the soft coating shall be removed.

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

### **3 Access to structures**

3.1 For overall survey, means shall be provided to enable the attending surveyors to examine the structure in a safe and practical way.

3.2 For close-up survey, one or more of the following means for access, acceptable to the attending surveyors, shall be provided:

- permanent staging and passages through structures
- temporary staging and passages through structures
- lifts and moveable platforms
- rafts or boats
- other equivalent means.

3.3 Surveys of tanks or spaces by means of rafts or boats may only be undertaken with the agreement of the attending surveyors, who shall take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions.

3.4 When rafts or boats will be used for close up survey the following conditions shall be observed:

- .1 only rough duty, inflatable rafts or boats, having satisfactory residual buoyancy and stability even if one chamber is ruptured, shall be used;
- .2 the boat or raft shall be tethered to the access ladder and an additional person shall be stationed down the access ladder with a clear view of the boat or raft;
- .3 appropriate lifejackets shall be available for all participants;
- .4 the surface of water in the tank shall be calm (under all foreseeable conditions the expected rise of water within the tank shall not exceed 0.25 m) and the water level either stationary or falling. On no account shall the level of the water be rising while the boat or raft is in use;
- .5 the tank or space must contain clean ballast water only. Even a thin sheen of oil on the water is not acceptable;
- .6 at no time shall the water level be allowed to be within 1 m of the deepest under deck web face flat so that the survey team is not isolated from a direct escape route to the tank hatch. Filling to levels above the deck transverses shall only be contemplated if a deck access manhole is fitted and open in the bay being examined, so that an escape route for the survey party is available at all times;
- .7 if the tanks (or spaces) are connected by a common venting system, or Inert Gas system, the tank in which the boat or raft is to be used shall be isolated to prevent a transfer of gas from other tanks (or spaces).

3.5 In addition to the above rafts or boats alone may be allowed for inspection of the under deck areas for tanks or spaces, if the depth of the webs are 1.5 m or less.

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

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

If neither of the above conditions are met then staging shall be provided for the survey of the under deck area.

#### **4 Equipment for survey**

4.1 Thickness measurement shall normally be carried out by means of ultrasonic test equipment. The accuracy of the equipment shall be proven to the attending surveyor(s) as required.

4.2 One or more of the following fracture detection procedures may be required if deemed necessary by the attending surveyor(s):

- radiographic equipment
- ultrasonic equipment
- magnetic particle equipment
- dye penetrant
- other equivalent means.

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

4.4 Adequate and safe lighting shall be provided for the safe and efficient conduct of the CAS survey.

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

#### **5 Meetings and Communication Arrangements**

5.1 The establishment of proper preparation and the close co-operation between the attending surveyors and the Company's representatives onboard prior to and during the CAS survey are an essential part in the safe and efficient conduct of the CAS survey. During the CAS survey on board safety meetings shall be held regularly.

5.2 Prior to commencement of the CAS survey a survey meeting shall be held between the attending surveyors the Company's representative(s) in attendance, the TM Firm Operator (as applicable) and the Master of the ship for the purpose to ascertain that all the arrangements

envisaged in the Survey Plan are in place, so as to ensure the safe and efficient conduct of the survey work to be carried out.

5.3 The following is an indicative list of items that shall be addressed in the meeting:

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

5.4 A communication system shall be arranged between the survey party in the tank or space being examined, the responsible officer on deck and, as the case may be, the navigation bridge. This system shall also include the personnel in charge of handling the ballast pump(s) if rafts or boats are used. The communication arrangements shall be maintained throughout the CAS survey.”

RESOLUTION MEPC.99(48)  
Adopted on 11 October 2002  
AMENDMENTS TO THE CONDITION ASSESSMENT SCHEME