
4 ALBERT EMBANKMENT
LONDON SE1 7SR
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

LL.3/Circ.236
24 July 2015

INTERNATIONAL CONVENTION ON LOAD LINES, 1966

Exemptions for dredgers under article 6

Communication by the Government of the Netherlands

The Secretary-General of the International Maritime Organization has the honour to transmit herewith, in accordance with article 6(3) of the above Convention, a communication by the Government of the Netherlands, containing *Guidelines for the assignment of reduced freeboards for dredgers, DR-68-Rev.1*.

The annexed guidelines supersede the guidelines annexed to circular LL.3/Circ.205.

The Secretary-General would be grateful if steps could be undertaken to bring this information to the attention of the appropriate authorities.



Ministry of Infrastructure and the
Environment

> Return address Postbus 20904 2500 EX Den Haag

The Secretary General of the
International Maritime Organization
4 Albert Embankment
London, SE1 7SR
United Kingdom

**Directoraat-Generaal
Bereikbaarheid**
Maritieme Zaken
Plesmanweg 1-6
Den Haag
Postbus 20904
2500 EX Den Haag
www.rijksoverheid.nl

Contact

Mr. K. Metselaar

T +31655292706

E kees.metselaar@minienm.nl

Our reference

IENM/BSK-2015/130282

Date 6 July 2015
Subject International Convention on Load Lines, 1966

Dear Mr. Secretary-General,

Please find enclosed 'Guidelines for the assignment of reduced freeboard for dredgers, DR-68 rev.1', which are submitted in accordance with Article 6(3) and Article 25 of the International Convention on Load Lines, 1966.

Dredgers and similar vessels complying with these guidelines will be issued an ICLL exemption certificate, based on Article 6(2) of the said Convention, which will allow such vessels to conduct operations at a reduced freeboard (i.e. submerging the ICLL Load Line marks).

The enclosed guidelines are the result of the joint efforts of a working group in which Belgium, Cyprus, France, Germany, Luxemburg, the United Kingdom, the United States of America and the Netherlands have been participating as well as classification societies and the dredging and the shipbuilding industry.

The enclosed guidelines supersede the existing guidelines annexed to Circular LL.3/Circ.205.

It would be appreciated if you could bring this notification to the attention of the Contracting Governments.

Yours sincerely,

Mrs. M.M.J. Streefkerk-Arts
Head of Unit for Maritime Shipping
Ministry of Infrastructure and the Environment



**GUIDELINES FOR THE ASSIGNMENT OF
REDUCED FREEBOARDS FOR DREDGERS,
DR-68 rev. 1**

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GUIDELINES FOR THE ASSIGNMENT OF REDUCED FREEBOARDS FOR DREDGERS, DR-68 rev. 1

Preamble

Dredgers are typically used for clearance or maintenance duties in ports, docks and navigation channels; for reclamation duties in the reclamation of land and beach replenishment; and for the recovery of materials for the building and civil engineering industries.

Early development of this trade did not usually cross national boundaries, and practices were therefore governed by diverse national standards. Since then, however, there have been an increasing number of international dredging projects, which require a dredger to have an international load line assignment in accordance with the International Convention on Load Lines (ICLL). However, a dredger may be designed to load cargo resulting in a deeper draft than that allowed by its ICLL freeboard assignment.

Therefore, the purpose of these Guidelines is to establish criteria by which a dredger - and similar vessels - may be issued an ICLL Exemption certificate that allows it to conduct operations at a reduced freeboard (i.e., that it may submerge its ICLL load line marks).

In order to qualify for the ICLL Exemption certificate, a dredger must meet the design and equipment requirements as specified in these Guidelines. These will ensure that the dredger has the ability to quickly dump its cargo (even in the event of loss of primary power), thereby immediately regaining the buoyancy and freeboard necessary for the dredger to comply with operation at the dredger's normal ICLL freeboard.

The Guidelines are the outcome of work by a "Joint Working Group on dredgers operating at Reduced Freeboard". This Group represented classification societies, the dredging industry, the shipbuilding industry and regulatory bodies from Belgium, Cyprus, France, Germany, Luxemburg, The Netherlands, United States and the United Kingdom. The Guidelines have been developed to provide a harmonised standard for construction and operation of dredgers on the basis of overall safety equivalence to the International Convention on Load Lines, 1966, as modified by the Protocol of 1988 relating thereto, as amended. While the Guidelines were developed for application to dredgers with a gross tonnage as measured under the 1969 ITC not less than 500, these Guidelines may be applied to dredgers with a gross tonnage less than 500 that are also subject to the requirements of the ICLL.

Legal relationship to the ICLL

These Guidelines are an ICLL Article 25 “special rule” drawn up by agreement between Contracting Governments to the ICLL. In addition to the original working group participants, other Administrations may join the agreement by notifying the custodial administrator of these Guidelines, and by notifying IMO in accordance with ICLL Article 6(3).

These Guidelines are intended for a dredger that has a valid ICLL certificate; this ensures the overall seaworthiness of the vessel at its normal freeboard assignment. A dredger that further meets the design and equipment requirements of these Guidelines is considered to have “novel features” as contemplated by ICLL Article 6(2) and, when operated in accordance with the specified weather or sea state limitations, can safely operate at a reduced freeboard. It may therefore be issued an ICLL Exemption certificate that exempts it from Article 12, which otherwise prohibits submersion of the ICLL load line marks. Dredgers without hatch covers, but which still meet the intact stability requirements of Section 6.1 herein, may also be exempted from Regulation 14, which otherwise requires weathertight hatch covers.

Administrative management

The custodial administrator of these Guidelines will maintain the official version, coordinate future revisions, if appropriate, and, in such case, will submit a revised version to the IMO as appropriate:

Ministry of Transport, Public Works and Water Management,
Directorate General for Civil Aviation and Freight Transport,
P.O. Box 16191,
2500 BD The Hague, THE NETHERLANDS

The first version of these Guidelines, designated as “DR-67”, was established in 2001. The current version, designated “DR-68 rev.1”, supersedes DR-67 for vessels constructed on or after 1 January 2010. However, an ICLL Exemption certificate issued under DR-67 may be renewed provided that the dredger continues to comply with its original requirements.

Members of the Joint Working Group have agreed to meet on a regular basis to review the Guidelines and keep them up-dated against any new development within the areas covered by the Guidelines.

Members of the Joint Working Group are invited to communicate the Guidelines to any party engaged in or regulating dredging activity.

1. General

1.1 Purpose

The purpose of these Guidelines is to specify design criteria, construction and survey standards, and operational safety measures for dredgers permitting safe operation at freeboards less than the minimum freeboards prescribed by the ICLL as amended.

1.2 Application

These Guidelines apply to dredgers of 500 gross tons (GT) as measured under the 1969 International Tonnage Convention (ITC) and above, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2010. For vessels the keels of which are laid prior to 1 January 2010, these Guidelines may be applied at the discretion of the Administration.

An existing dredger of 500 GT and above may be assigned a reduced freeboard calculated in accordance with these Guidelines, provided that the ship complies with all the conditions of these Guidelines.

Similar units such as (non self-propelled) hopper barges and stone dumping vessels etc., which are capable of discharging their cargo as required under 7.1 of these Guidelines, may be treated as dredgers. Application of these Guidelines to unmanned or non-self propelled vessels is addressed in section 13 of these Guidelines.

1.3 Definitions

For the purpose of these Guidelines, the following definitions apply:

A dredger is a self-propelled, manned vessel capable of loading dredgings at sea and fitted with bottom doors or of split type. Similar means for discharging or dumping the dredgings to the sea shall be to the satisfaction of the Administration.

Dredgings are materials consisting of soil, sand, gravel, or rock.

Cargo means dredgings and entrained water.

Convention means International Convention on Load Lines, 1966, as modified by the 1988 Protocol relating thereto, as amended.

Guidelines means Guidelines for the construction and operation of dredgers assigned reduced freeboards.

2. Load Line Marks

In addition to the load line mark and load lines prescribed by the applicable provisions of the Convention, a dredger load line and dredger fresh water load line, corresponding to the reduced freeboard assigned in accordance with the provisions of these Guidelines, shall be permanently marked on both sides of the dredger, extending aft and forward respectively of a vertical line joining the two.

The vertical line shall be placed 540 mm aft of the centre of the load line mark. The vertical line and dredger load lines shall be 25 mm in width and the dredger load lines 230 mm in length.

The dredger load line is indicated by the upper edge of that line to be marked DR, and the dredger fresh water load line by the upper edge of that line to be marked DRF. The lines should be painted in a colour contrasting with the colour of the hull.

The assigned dredger load lines (DRF and DR) refer to the top of the freeboard deck regardless of any possible deck line correction as covered by Regulation 32 of the Convention.

Annex 1 to these Guidelines provides a diagram that shows the particulars of the load line marks specified in this section.

3. Freeboard

3.1 The dredger may be assigned a reduced freeboard for loading, carrying or discharging dredgings. The reduced freeboard is the summer freeboard calculated for a type B ship in accordance with Regulation 40 of the Convention, reduced by $\frac{2}{3}$ of the resulting summer freeboard to be calculated without Regulation 39 (bow height and reserve buoyancy) of the Convention taken into account.

For calculating the dredger freeboard, the resulting summer freeboard as for a type B vessel without any reduction or addition shall be used.

3.2 The minimum bow height at the dredger load line is the bow height provided by the Convention, Regulation 39(1), reduced by the reduction as calculated in 3.1 of these guidelines.

The reserve buoyancy as required by Regulation 39.5 of the Convention need not be taken into account for the determination of the dredger freeboards.

3.3 The minimum dredger freeboard in freshwater of unit density shall be obtained by deducting from the minimum dredger freeboard in salt water:

$$\Delta / 40 T \text{ centimetres}$$

Where Δ = displacement in salt water in tons at the dredger load waterline

T = tons per centimetre immersion in salt water at the dredger load waterline

For hopper dredgers where the hopper may be temporarily open to sea, the hopper is to be considered as closed for the purpose of calculating the ship's moulded displacement.

4. Specific Load Line Provisions

- 4.1 No bulwarks shall be fitted along the ships' sides abreast of any hopper which is an open hopper.
- 4.2 A safe access from the fore end to the aft end of the dredger shall be provided for the protection of the crew. The safe access shall comply with the applicable provisions of the Convention, Regulation 25-1.

Where the access is located above the freeboard deck it shall be at least as high above the freeboard deck as the difference between the summer freeboard and the dredger load line freeboard.

- 4.3 Means for overflow of process water shall be arranged as follows:
- over the spill-out edge of the hopper coaming; or
 - through overflow ducts or spillways in the hopper walls; or
 - through adjustable overflows.

The overflow arrangements prescribed at (b) and (c) shall have an area of at least:

- $0.7(L_h)^2/1000 \text{ m}^2$, where L_h is the maximum length of the hopper in metres, or
- $Q/3 \text{ m}^2$, in which Q is the total maximum water capacity of the suction dredge pumps in m^3/sec ; whichever is greater.

- 4.4 A suitable hopper geometry shall consist of:
- the height above the dredger load line of the spill-out edge of the hopper, exceeding at all points the minimum bow height value calculated according to section 3.2; or
 - freeing ports of sufficient area to ensure rapid outflow of sea water, the area of such ports being at least equivalent to the area required by regulation 24(1) of the annex to the Convention when hopper length and height above overflow ducts or spillways are substituted for bulwark length and height above deck; or
 - closed hopper.

Subject to suitable hopper geometry, the content of the hopper at the dredger load line may be assumed to be cargo up to the lower edge of the overflow arrangement, and when dredging dense cargoes may be assumed to consist of a layer of seawater on top of the cargo up to the lower edge of the overflow arrangement; where no overflow arrangement is provided the layer of seawater on top of the cargo shall be assumed to extend to the spill-out edge of the hopper.

4.5 For openings addressed by Regulations 21 (Cargo Ports and other similar Openings), 22 (Scuppers, Inlets and Discharges) and 23 (Side Scuttles) of the Convention, the terms “uppermost load line”, “summer load line” and “load waterline” are to be replaced by the term “dredger load line.”

The minimum coaming height of air pipes and ventilators located on the freeboard deck shall be increased by the difference between the summer freeboard and the freeboard at the dredger load line.

The coaming of ventilators and airpipes on board of the ship shall not be lower above the waterline than calculated for the coaming height of air pipes and ventilator on the freeboard deck.

5. Construction

The structural strength of the dredger operating at the dredger load line shall be approved. Operational limitations may be imposed. Different restrictions can be applied at various drafts to suit the operation of the dredger.

6. Stability

6.1 Intact Stability

The intact stability of the ship is to be sufficient to comply with the criteria indicated in 6.1.3 for each of the loading conditions of 6.1.2 in accordance with the calculation method described in 6.1.1.

6.1.1 Calculation Method

In addition to the provisions of paragraph 4.4 of these Guidelines, the calculation of the righting lever curves shall take into account:

- the change of trim due to heel
- in the case of an open hopper the inflow of seawater or outflow of liquid cargo and sea water over the spill-out edge of the hopper,
- the inflow of seawater through any overflow, spillway or freeing port, either at the lower edge of the opening or at the cargo/ seawater interface, whichever is the lower.
- outflow of the cargo only occurs over the spill-out edge of the hopper where this edge has a length of at least 50% of the maximum hopper length at a constant height above the freeboard deck on both sides of the hopper.

The intact stability computer program shall be acceptable to the Administration and the Classification Society.

6.1.2 Loading Conditions

The following loading conditions considering the full range of cargo densities should be assumed for the calculations of the intact stability.

6.1.2.1 State of cargo: liquid

The calculations are to be carried out for each of the loading conditions a) and b) considering:

- the ship loaded to the dredger load line,
- the cargo as a liquid
- a) the hopper(s) fully loaded with a homogeneous cargo of density ρ_m (kg/m^3) up to the spill-out edge of the hopper:

$$\rho_m = M_1/V_1 \text{ with:}$$

M_1 = mass of cargo in the hopper when loaded at the dredger load line, in kg.

V_1 = volume of the hopper at the spill-out edge of the hopper, in m^3

The stability calculations are made for the conditions of stores and fuel equal to 100% and 10% and an intermediate condition if such a condition is more critical than both 100% and 10%.

- b) the hopper(s) filled or partly filled with a homogeneous cargo of densities equal to 1000, 1200, 1400, 1600, 1800, 2000 kg/m^3 .

When the dredger load line cannot be reached due to the density of the cargo, the hopper is to be considered filled up to the spill-out edge of the hopper.

The stability calculations are made for the condition of stores and fuel that is the most critical to meet the stability criteria in the stability calculations for density ρ_m as described in a).

6.1.2.2 State of cargo: solid

The stability calculations are to be carried out for each of the conditions a) and b) considering:

- the ship loaded to the dredger load line
- the cargo as solid
- a) the hopper(s) fully loaded with a homogeneous cargo of density ρ_m up to the spill-out edge of the hopper, as calculated in 6.1.2.1 a).

The stability calculations are made for the conditions of stores and fuel equal to 100%, 10% and an intermediate condition if such a condition is more critical than both 100% and 10%.

- b) the hopper(s) filled or partly filled with a homogeneous cargo of densities equal to 1400, 1600, 1800, 2000, 2200 kg/m^3 which are greater than ρ_m

The stability calculations are made for the condition of stores and fuel that is the most critical to meet the stability criteria in the stability calculations for density ρ_m as described in a).

- c) for dredgers with bottom doors or similar means at port side and at starboard side, an additional calculation is to be made for asymmetric discharging as described below:

The dredger is assumed to be loaded to the dredger load line with solid cargo of a density equal to 1900 kg/m^3 ; when discharging, 20% of the total hopper load is assumed to be discharging only at

one side of the longitudinal centre line of the hopper, horizontally equally distributed at the discharging side.

In this situation:

- the angle of equilibrium should not exceed 25°
- the righting lever GZ within the 30° range beyond the angle of equilibrium should be at least 0.10 m
- the range of stability should not be less than 30°

6.1.2.3 No cargo

Stability calculations are to be carried out for the hopper(s) with no cargo, the bottom dumping system being open to sea, and with stores and fuel at each of 100% and 10% and an intermediate condition if such a condition is more critical than both 100% and 10%.

For split hopper dredgers, an additional stability calculation is to be made in split hull configuration, with stores and fuel at each of 100% and 10% and an intermediate condition if such a condition is more critical than both 100% and 10%.

6.1.3 Intact Stability Criteria

For the conditions of loading stipulated in 6.1.2, the dredger shall meet the following intact stability criteria, except loading conditions involving asymmetric discharge in which case the criteria contained in 6.1.2.2(c) shall be met:

- The area under the righting lever curve shall not be less than 0.07 m·rad up to an angle of 15° when the maximum righting lever GZ_{max} occurs at 15° and 0.055 m·rad up to an angle of 30° when the maximum righting lever GZ_{max} occurs at 30° or above;
- Where the maximum righting lever GZ_{max} occurs at angles of between 15° and 30°, the corresponding area under the righting lever curve shall be $0.055+0.001(30-\theta_{max}^*)$ m·rad;
- The area under the righting lever curve between the angles of heel of 30° and 40°, or between 30° and $\theta_{f^{**}}$ if this angle is less than 40°, shall not be less than 0.03 m·rad;
- The righting lever GZ shall be at least 0.20 m at an angle of heel equal to or greater than 30°;
- The maximum righting lever GZ_{max} shall occur at an angle of heel not less than 15°; and

- The initial metacentric height GM_0 as corrected for the free surface effect of tanks and hopper(s) containing liquids, shall not be less than 0.15 m.
- * θ_{max} is the angle of heel, in degrees, at which the righting lever curve reaches its maximum.
- ** θ_f is the angle of heel, in degrees, at which openings in the hull, superstructure or deckhouses which cannot be closed weathertight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

6.1.4 Weather Criterion

The dredger shall comply with the weather criterion of the IMO Code on Intact Stability, as amended, at the summer load line taking into account the following loading condition:

- state of the cargo: liquid
- stores and fuel: 10%
- hopper(s) loaded with a homogeneous cargo up to the spill-out edge of the hopper where the density of such cargo equals or exceeds 1000 kg/m^3 ; where this condition implies a lighter cargo than 1000 kg/m^3 the hopper is considered to be partially filled with a cargo of density equal to 1000 kg/m^3 .

In addition to the weather criterion requirement at the summer load line, the dredger shall comply, for the conditions at the dredger load line calculated according section 6.1.2.1, 6.1.2.2 and 6.1.2.3 of these Guidelines, with the weather criterion of the International Code on Intact Stability, 2008, as amended, assuming a reduced wind pressure of $P = 270 \text{ N/m}^2$.

6.2 Damage Stability

Provisions of Chapter II-1 of SOLAS 1974, as amended, relevant to damage stability and as further amended and modified by 6.2.1, 6.2.2 and 6.2.3 of these Guidelines, shall be complied with. For a dredger with a subdivision length less than 80 metres, Subdivision Index (R) should be calculated using $L_s = 80$ metres.

6.2.1 Calculation Method

- a) The calculation of the righting lever curves shall take into account:
- the change of trim due to heel.
 - in the case of an open hopper the inflow of seawater or outflow of liquid cargo and sea water over the spill-out edge of the hopper.
 - the inflow of seawater through any overflow, spillway or freeing port, either at the lower edge of the opening or at the cargo/seawater interface, whichever

is the lower. Adjustable overflows operated from the navigation bridge, may be considered to be located at the highest position.

- outflow of the cargo only occurs over the spill-out edge of the hopper where this edge has a length of at least 50% of the maximum hopper length at a constant height above the freeboard deck on both sides of the hopper.
- the sliding of the cargo surface in the hopper, in transverse and longitudinal direction according to the following shifting law:

The cargo surface is assumed to be plane, and

$$\begin{aligned}\theta_r &= \theta_g && \text{for } \rho \leq 1400 \text{ (liquid cargo)} \\ \theta_r &= \theta_g (2000 - \rho) / 600 && \text{for } 1400 < \rho < 2000 \text{ (sliding cargo)} \\ \theta_r &= 0 && \text{for } \rho \geq 2000 \text{ (solid cargo)}\end{aligned}$$

With:

ρ [kg/m ³]	cargo density
θ_r [degrees]	shifting angle of the cargo surface
θ_g [degrees]	angle of heel or angle of trim

- b) The damage stability calculations shall take into account all the possible progressive floodings. A progressive flooding is an additional flooding of spaces interconnected with those assumed to be damaged.

Such additional flooding may occur through openings or pipes as indicated in the following conditions:

Internal progressive flooding via:

- pipes and connected valves which are located within the assumed damage, where no valves are fitted outside the damage zone,
- pipes, even if located outside the damage zone, where all the following conditions apply:
 - the pipe connects a damaged space to one or more intact spaces
 - the pipe is below a damage waterline at all points between the connected spaces
 - the pipe has no valves between the connected spaces
- all internal doors other than:

- remotely operated sliding watertight doors
- watertight access doors required to be normally closed at sea

External progressive flooding via:

- external openings where a damage waterline, taking into account sinkage heel and trim, immerses the lower edge of the sill or coaming and where the openings are not fitted with watertight means of closure. Such non watertight openings include air pipes whether or not fitted with automatic weathertight closure, ventilators, hatch covers whether or not fitted with weathertight means of closure. Openings which may be assumed watertight include manhole covers, flush scuttles and small watertight hatch covers which maintain the high integrity of the deck, side scuttles of the non opening type.
- c The damage stability computer program shall be acceptable to the Administration and the Classification Society.
- d When calculating the damaged stability, only the loaded dredger draft (d_{dL}) and the light service draft (d_l) need to be taken into account.

6.2.2 Loading Conditions

6.2.2.1 The attained subdivision index A_l is to be calculated for the light service draught d_l and corresponding trim, assuming the dredger is loaded with 50% stores and fuel, no cargo in the hopper(s), and the hopper(s) in direct communication with the sea.

6.2.2.2 The attained subdivision index A_{dL} is to be calculated for each cargo density defined in a) and b) assuming the dredger is loaded at dredger load line d_L , with 50% stores and fuel.

The damage stability calculations are to be performed taking into account the initial trim of the dredger load line and an assumed permeability of the cargo filled hopper space of 0 % and a permeability of the space above the cargo equal to 100%.

In performing these calculations, the spoils are considered not to be porous and that any seawater that enters a partially full hopper due to damage ingresses only to the space above the upper surface of the spoils.

- a) the design density ρ_d corresponding to the dredger load line where:

$$\rho_d = \frac{M_2}{V_2}$$

M_2 [kg] mass of cargo in the hopper when loaded at dredger load line with stores and fuel at 50%.

V_2 [m³] volume of the hopper at the highest overflow position

b) each density ρ_i greater than ρ_d , defined by:

$$\rho_i = 2200 - 200(i) \text{ where } i = [0, 1, 2, 3, \dots, 6.]$$

6.2.3 Damage Stability Criteria

The Required Subdivision Index R and the Attained Subdivision Index A are calculated according to SOLAS chapter II-1, as amended, except that instead of the formula set out in SOLAS Chapter II-1 regulation 7.1 the following shall be taken into account:

$$A \geq R \quad \text{for each cargo density defined in 6.2.2.2}$$

$$A_i \geq 0.7R$$

$$A_{dL} \geq 0.7R \quad \text{for each cargo density defined in 6.2.2.2}$$

Where:

$$A = 0.5(A_i + A_{dL})$$

A_i = attained subdivision index at light service draught d_i

A_{dL} = attained subdivision index at loaded dredger draught d_{dL} and cargo densities defined in 6.2.2.2

7. Equipment

7.1 Dumping System

7.1.1 The cargo dumping system shall be capable of discharging the cargo by gravity, such that the dredger shall increase its freeboard from the dredger load line to the summer load line within 8 minutes using normal operation of the dumping system.

Means of overflow and spillways shall not be regarded equivalent to a cargo dumping system.

7.1.2 Emergency devices, controlled from the navigating bridge, shall be fitted so that the discharge of cargo is also possible in case of failure of the main electric power supply and/or the main hydraulic unit and/or single failure of the normal control systems.

7.2 Draught Gauges

An accurate draught indicator, capable of showing the corresponding position of the dredger draught, shall be fitted at the navigating bridge.

This draught indicator shall also be capable of providing a record of draught as a function of time.

7.3 Dredge valves emergency closing

Emergency closing devices shall be provided for dredge valves in piping systems penetrating the shell below the freeboard deck and which are normally open when loading cargo by dredging. The emergency closing devices shall be operable from the navigating bridge. They shall be capable of operation in case of failure of the main electric power supply and/or the main hydraulic unit and/or single failure of the normal control systems.

7.4 Wave height information

During operations at dredger load line in operational areas defined by a limiting significant wave height, the master shall be provided with meteorological information and a forecast of the relevant seaway condition in terms of significant wave height.

Where such information may not be obtained, a wave measuring system, acceptable to the Administration, shall be used.

8. Information to the Master

The master shall be provided with written information posted on the navigation bridge, which may be supplemented by other media, as follows:

8.1 Sufficient information, in a format approved by the Administration, to enable the master to arrange for the loading and ballasting of the dredger so as to avoid the creation of any unacceptable stresses in the ship's structure. The information shall define any sea state restrictions in terms of maximum significant wave height when operating at dredger load line.

8.2 Sufficient information, in a format approved by the Administration, to enable the master by rapid and simple means to ensure compliance with the intact and damage stability requirements of these Guidelines. The following items shall be included:

- Hydrostatic data for a range of draughts from lightship to dredger load line.
- Tank and hopper filling calibrations detailing volumes, centroids and free surface inertia's, and including the volumes of hoppers above spillways.
- Righting lever curves for the loading conditions as specified in section 6.1.2 for each of the specified densities.
- The particulars of those loading conditions showing the fulfillment of the criteria in section 6.1.3 of the Guidelines.
- A summary of the required and attained subdivision indices resulting from the probabilistic damaged stability calculations in accordance with section 6.2 of the Guidelines.
- Relevant information for the master for which damage cases of flooding of main compartments the dredger will remain afloat at the dredger draught and at the unloaded draught, described on a wheelhouse poster and derived from the calculations made in accordance with the Guidelines.
- Instructions concerning the closure of watertight doors and valves.
- Instructions concerning the operation of cross-flooding arrangements where fitted.
- Instructions on maintaining dry bilge's in void spaces.
- All other data and aids which might be necessary to maintain stability after damage.

Note: A curve of minimum operational metacentric heights (GM) against draught or of maximum allowable vertical centers of gravity (KG) against draught is not required if the dredger meets the relevant intact and damage stability requirements for all possible loading conditions as defined in paragraph 6.1.2.

- 8.3** Information on the adjustment of the overflow systems in order to avoid submergence of the dredger load line and to assure compliance with the intact stability requirements.
- 8.4** Clear instructions for the operation of the dumping system, the dredge pumps and the dredge valves in case of emergency. A copy of these instructions shall be permanently posted at the navigating bridge.
- 8.5** Clear instructions on sea state limitations to be observed and on procedures with regard to wave height prediction.
- 8.6** Plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with their means of closure and position of any associated controls, and the arrangements for the correction of any list due to flooding. Such plans shall also be made available to watchkeeping officers of the dredger and shall be permanently exhibited or readily available on the navigating bridge.

9. Exemptions

The dredger shall be exempted from Article 12 (1) "Submersion" of the Convention, when operating at the dredger load line in accordance with these Guidelines by the Administration.

In case of "open hopper" the dredger is to be exempted from providing hatch covers as required by the Convention, Regulation 14.

Such exemptions shall be deemed to be granted in accordance with Article 6(2) of the Convention and are to be announced to all other parties concerned via the IMO.

10. Equivalents

- 10.1** Where these Guidelines require that a particular fitting, material, appliance, apparatus or type thereof should be fitted or carried, or that any particular provision should be made, or any procedure or arrangement should be complied with the Administration may allow any other fitting, material, appliance, apparatus or type thereof to be fitted or carried, or other provision made, or other procedure or arrangement complied with if it is satisfied by trial thereof or otherwise that such fitting, material, appliance, apparatus or type thereof or such provision, procedure or arrangement is at least as effective as that required by these Guidelines.
- 10.2** When an Administration allows any substitution under paragraph 10.1, it should communicate for the information of the participants to the agreement for the Guidelines, full particulars together with a report on the justification for such allowance.
- 10.3** In any case in which an Administration may allow a substitution of part or all of the dumping system required under paragraph 7.1 of these Guidelines, the Administration must confirm that an equivalent level of safety is maintained.
- 10.4** The Administration shall allow any fitting, material, appliance, apparatus or type thereof, meant in paragraph 10.1, which is rightfully produced or put upon the market in a Member State of the European Union or in a State Party to the Agreement on the European Economic Area and which meets equivalent technical requirements as those required by these Guidelines.

11. Inspections

- 11.1** Certain equipment and systems required by these Guidelines are critical to the safe operation of the dredger at the reduced freeboard. Thus, in addition to the normal scope of annual surveys, these critical systems must also be inspected and verified to be in good working condition.
- 11.2** Therefore, the following notation must be entered into the dredger's "Record of Conditions of Assignment" form (in the "Other special features" block):

The following systems and items shall be inspected annually and verified to be in proper working condition:

- (1) The emergency control systems for opening the hopper doors and closing the dredging valves;
- (2) The remote draft indicators; and
- (3) That the limiting sea state information, emergency control system instructions, and other information to the master are posted on the navigating bridge.

12. Certificates

- 12.1** Dredgers, under the scope of these Guidelines, engaged on international voyages shall hold a valid International Load Line certificate as required by Article 16 of the Convention.
- 12.2** Additionally, in order to operate at a reduced freeboard, dredgers must also be issued an ICLL Exemption certificate in accordance with Article 6(2). The ICLL Exemption certificate should indicate that the provision being exempted is Article 12, "Submersion of marks," and that the vessel is authorized to operate at drafts not exceeding the "DR" and "DRF" marks under the specified operational restrictions.
- 12.3** If the dredger meets the intact stability requirements of Section 6.1 of these Guidelines without hatch covers, then the ICLL Exemption certificate should also indicate that the dredger is exempted from Regulation 14 (unless this exemption is already noted on the vessel's ICLL certificate).
- 12.4** The ICLL Exemption certificate should also include the following information and conditions:
- (1) Reference to the "DR" and "DRF" marks, with the freeboard measurement from the ICLL deck line;
 - (2) The operational restrictions for operating at the reduced freeboard, including restriction of operation in wind speeds exceeding 35 knots;
 - (3) The validity dates of the ICLL Exemption certificate must be the same as the ICLL certificate.
- 12.5** A sample ICLL Exemption certificate is provided in Annex 2.

13. Special considerations for unmanned or non-self propelled units similar to dredgers

13.1 Freeboard:

An unmanned unit similar to a dredger is not required to meet the minimum bow height requirement as set forth in section 3.2 of these guidelines, as permitted by the Convention, Regulation 27(14). In those cases where the hopper geometry shall comply with 4.4 a of these guidelines, the spill out edge shall exceed the required bow height calculated for manned dredgers.

13.2 Specific Load Line Provisions:

In complying with the provisions of section 4.2 of these guidelines, a unmanned unit similar to a dredger need not comply with the height of safe access requirement contained in section 4.2.

13.3 Emergency Dumping Controls:

For an unmanned unit similar to a dredger, remotely operated emergency dumping controls fitted to comply with the requirements of section 7.1 of these guidelines, shall be remote controlled from a safe, permanently manned location within sight of the unmanned unit.

13.4 Draught Gauges:

For an unmanned unit similar to a dredger, draft gauges fitted to comply with the requirements of section 7.2 of these guidelines, shall indicate the dredgers draft on a safe, permanently manned location within sight of the unmanned unit

End of Guideline

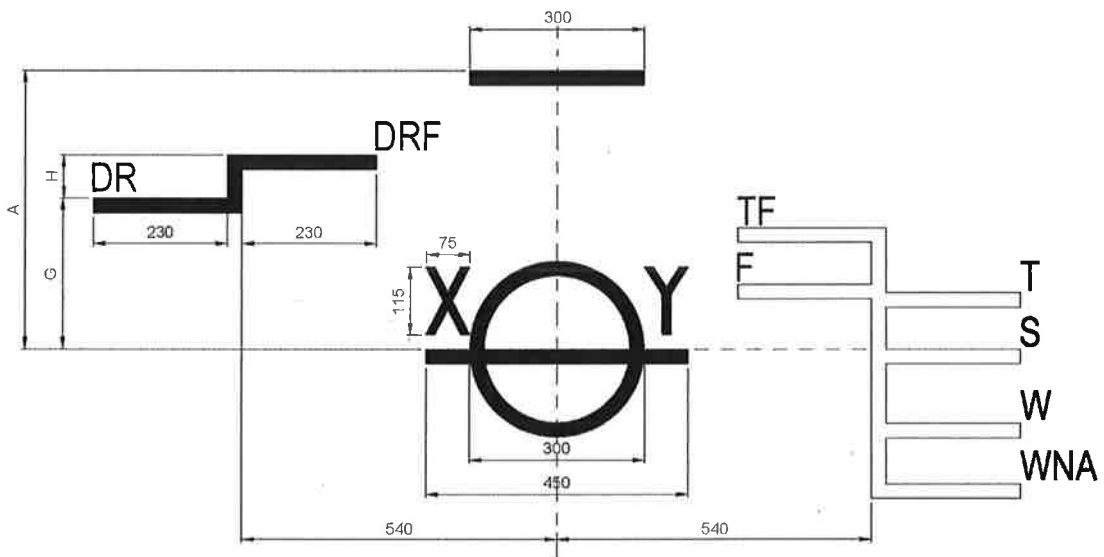
Annex 1: Particulars for positioning of the load line marks

According to the calculation for the freeboard of "_____", building number: _____ the load line marks should be placed on both sides of the ship, as indicated below.

The length (L) as stated in Annex I, Chapter I, Regulation 3 ICLL is measured _____ meter.

The upper edge of the deck line is positioned ____ mm below / above the _____ deck at side.

The centre of the deck line is _____ mm _____ frame no. ____.



The distance **A** is: _____ mm. The distance **B** is: _____ mm.

The distance **C** is: _____ mm. The distance **D** is: _____ mm.

The distance **E** is: _____ mm. The distance **F** is: _____ mm.

The distance **G** is: _____ mm. The distance **H** is: _____ mm.

All lines have a thickness of 25 mm.

The international load lines shall be positioned forward of the ring on port side and starboard side.

The letters XY shall be replaced by the common letters used by the Assigning Authority.

Annex 2: Form of International Exemption Certificate on Load Lines

INTERNATIONAL LOAD LINE EXEMPTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION ON LOAD LINES, 1966,
and in accordance with
Assembly Resolution A883(21)
relating to the
Global implementation of the harmonized system of survey and certification
under the authority of the Government of

by

(organization authorized)

Name of ship		Port of registry	
Distinctive number or letters	IMO number	Length (L) as defined in article 2(8)	

THIS IS TO CERTIFY:

That the ship is exempted from the provisions of the 1966 Convention, under the authority conferred by article **6(2)** of the Convention referred to above.

The provisions of the Convention from which the ship is exempted under article **6(2)** are:

Article 12(1) submersion

The voyage for which exemption is granted under article 6(4) is:

Conditions, if any, on which the Exemption Certificate is granted under article number 6(2):

Subject to the following conditions, this ship is authorized to operate at drafts not exceeding the "DR" load marks located ___ mm aft the centre of the circle and ___ mm below / above the deck line:

- 1) Wind speeds not exceeding ___ m;
- 2) Significant waves not exceeding ___ meters;
- 3) Annual inspection and verification of the following:
 - a. That the emergency control system for opening the hopper door and closing the dredger valves, and the remote draft indicators are in proper working order; and
 - b. That the limiting sea conditions above, and instructions for the emergency jettisoning of spoils, are posted on the navigation bridge.
- 4) Other restrictions, if any: ___

Freshwater allowance under this exemption is ___ mm, and is indicated by the "DRF" load marks.

This certificate refers to the load line certificate number: _____

This certificate is valid until _____ subject to annual surveys in accordance with article 14(1)(c) of the Convention and the verification requirements of paragraph (3) above.

Issued at _____, _____ under number: _____
(Place of issue of certificate)

(Date of issue)

(Signature of authorized official
issuing the certificate)

Endorsement for annual surveys

This is to certify that, at an annual survey required by article 14(1)(c) of the Convention, the ship was found to comply with the conditions under which this exemption was granted.

Annual survey: Signed:

(Seal) Place:

Date:

Annual survey: Signed:

(Seal) Place:

Date:

Annual survey: Signed:

(Seal) Place:

Date:

Annual survey: Signed:

(Seal) Place:

Date:

Annual survey in accordance with article 19(8)(c)

THIS IS TO CERTIFY that, at a survey in accordance with article 19(8)(c) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual survey: Signed:

(Seal) Place:

Date:

Endorsement to extend the validity of the Certificate if valid for less than 5 years where article 19(3) applies

The ship complies with the relevant requirements of the Convention, and this Certificate shall, in accordance with article 19(3) of the Convention, be accepted as valid until

Annual survey: Signed:

(Seal) Place:

Date:

Endorsement where the renewal survey has been completed and article 19(4) applies

The ship complies with the relevant requirements of the Convention, and this Certificate shall, in accordance with article 19(4) of the Convention, be accepted as valid until

Annual survey: Signed:

(Seal) Place:

Date:

Endorsement to extend the validity of the Certificate until reaching the port of survey or for a period of grace where article 19(5) or 19(6) applies

The ship complies with the relevant requirements of the Convention, and this Certificate shall, in accordance with article 19(3) of the Convention, be accepted as valid until

Annual survey: Signed:

(Seal) Place:

Date:

Endorsement for advancement of anniversary date where article 19(8) applies

In accordance with article 19(8) of the Convention, the new anniversary date is.....

Annual survey: Signed:

(Seal) Place:

Date:

In accordance with article 19(8) of the Convention, the new anniversary date is.....

Annual survey: Signed:

(Seal) Place:

Date:

