

**United States  
Coast Guard**

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NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-94

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Subj: REQUIREMENTS FOR VESSELS CARRYING BULK GRAIN CARGO

1. **PURPOSE.** This circular calls the attention of Coast Guard field units, shippers and carriers of bulk grain cargo to the International Maritime Organization's (IMO) Code for the Safe Carriage of Grain in Bulk, referred to as the Grain Code, which entered into force on January 1, 1994. The Grain Code specifies stability, loading requirements, and Documents of Authorization for each vessel that loads grain in bulk.
2. **DIRECTIVES AFFECTED** This circular cancels and supersedes NVIC 2-78.
3. **BACKGROUND.** In response to the growing need for broader regulation of the carriage of all cargoes which may pose a hazard to ships or personnel, the Maritime Safety Committee (MSC) decided to replace the original Chapter VI of the Safety of Life at Sea Convention, 1974 as amended, (SOLAS), which contained detailed regulations on the carriage of grain in bulk, with requirements of a more general nature and to place the detailed provisions on grain in a mandatory code. SOLAS Chapter VI previously titled "Carriage of Grain" is now titled "Carriage of Cargoes." At the 59th session in May 1991, MSS adopted amendments to SOLAS Chapter VI Part C Regulation 9 (resolution MSC.23[59]) to make the International Code for the Safe Carriage of Grain in Bulk mandatory. The Grain Code became effective January 1, 1994.. The Grain Code is available to the public from the IMO as publication 240-E. Information on obtaining this publication can be found in enclosure (1).
4. **DISCUSSION.**
  - a. The Grain Code applies to all vessels that load grain in bulk in U.S. waters, except those engaged solely on voyages on rivers, lakes, bays, and sounds, or on voyages between Great Lakes ports and specific St. Lawrence River ports as referred to in the Load Line Convention. The St. Lawrence River ports exempted include those ports as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island, and as far east as a line drawn along the 63rd meridian from Anticosti Island to the north shore of the St. Lawrence River.
  - b. A Document of Authorization is required for each vessel to which the Grain Code applies except vessels on certain intracoastal voyages, provided they comply with the alternative conditions found in enclosure (2). The U.S. Coast Guard has delegated the authority to issue Documents of Authorization to the National Cargo Bureau, Incorporated (NCB). Information on contacting NCB can be found in enclosure (1). Requirements for obtaining a Document of Authorization are summarized in enclosure (3). The Document of Authorization format is shown in enclosure (4).

- c. Vessels to which the Grain Code applies are required by the Code of Federal Regulations to obtain a Certificate of Loading before each sailing. A Certificate of Loading, issued by the NCB, attests that the stability of the vessel complies with the information approved by its Document of Authorization, or otherwise is in compliance with enclosure (2) before each voyage from a U.S. port. The Certificate of Loading is recognized by the Coast Guard as evidence of compliance with regulation 7.2 of the Grain Code.
  - d. A vessel which carries a cargo of grain in bulk should not, at the same time, carry any solid bulk cargo which may liquefy unless such cargo is tested and the moisture content is equal to or less than the transportable moisture limit. Testing should be conducted in accordance with the procedures set forth in the Code of Safe Practice for Solid Bulk Cargoes, International Maritime Organization publication No. 260-E.
5. IMPLEMENTATION. Officers in Charge, Marine Inspection, are encouraged to bring this NVIC to the attention of appropriate individuals in the marine industry within their zone.



J. C. CARD  
Rear Admiral, U.S. Coast Guard  
Chief, Office of Marine Safety, Security  
and Environmental Protection

SOURCES FOR OBTAINING ADDITIONAL INFORMATION

1. The International Code for the Safe Carriage of Grain in Bulk (IMO Resolution MSC.23(59), publication No. 240-E can be obtained from:

Publication Section  
International Maritime Organization  
4 Albert Embankment  
London SE1 7SR  
United Kingdom  
Telephone: +44(0)71-735 7611  
Fax: +44(0)71-587 3210 or

New York Nautical Instrument and Service  
140 West Broadway  
New York, NY 10013  
Telephone: (212)962-4522  
Fax: (212)406-8420

2. Documents of Authorization and additional Grain Code compliance guidance can be obtained from:

National Cargo Bureau Incorporated  
30 Vesey Street  
New York, NY 10007-2914  
Telephone: (212)571-5000  
Fax: (212)571-5005

VOYAGES AND CONDITIONS FOR THOSE VESSELS EXEMPTED FROM THE  
REQUIREMENTS OF OBTAINING A DOCUMENT OF AUTHORIZATION

1. Vessels without a Document of Authorization may carry grain in bulk subject to the limitations imposed by Sections 8.3 or 9 provided their stability complies with the requirements regarding subdivision of cargo compartments, securing of hatches, trimming of cargo and metacentric height as detailed in Section 9 of the Grain Code.
2. Vessels on the following voyages:
  - a. United States ports along the Northeast Coast from as far south as Cape Henry;
  - b. Wilmington, NC and Miami, FL;
  - c. United States ports in the Gulf of Mexico;
  - d. Puget Sound ports and Canadian West Coast ports or Columbia River ports, or both; or
  - e. San Francisco, Los Angeles, and San Diego, CA
  - f. Great Lakes ports to United States ports along the Northeast coast as far south as Cape Henry.

do not need a Document of Authorization if they comply with the following conditions:

- a. The master or person in charge is satisfied that the longitudinal strength of his vessel is not impaired.
- b. The master or person in charge ascertains the weather to be encountered on the voyage and determines it does not pose a risk.
- c. Potential heeling moments are reduced to a minimum by carrying as few slack holds as possible.
- d. Each slack surface has been leveled.
- e. The transverse metacentric height (GM), in meters, of the vessel throughout the voyage, after correction for liquid free surface, has been shown by stability calculations to be in excess of the required GM ( $GM_r$ ), in meters.
  - (1) The GM is the sum of the increments of GM ( $GM_1$ ) multiplied by the correction factor, f.  
  
where:  $f = 1$  if  $r$  is  $\geq 0.268$  or  
 $f = (0.268+r)$  if  $r$  is  $\leq 0.268$ .  
 $r = (\text{available freeboard})+(\text{beam})$  of the vessel and
  - (2) The  $GM_1$  for each compartment which has a slack surface of grain, i.e., is not trimmed full, is calculated by the formula given below:

$$GM_1 - (B^3 L \times 0.0661) + (\text{Disp.} \times \text{SF})$$

where: B = breadth of slack grain surface (m)

L = Length of compartment (m)

Disp. = Displacement of vessel (tones)

SF = Stowage factor of grain in compartment (cubic meters/tones)

REQUIREMENTS FOR U.S. VESSELS OBTAINING DOCUMENTS OF AUTHORIZATION

1. General Requirements. The grain stability information required by the Grain Code that must be included in the Document of Authorization is in addition to that provided to the master in accordance with 46 CFR 170.110 and 42.15-1.
2. Stability Information- Stability information in the format of a grain loading booklet or a grain loading appendix to a Trim and Stability booklet shall be submitted to the NCB for approval.
  - a. The submittal should contain:
    - (1) 5 copies of the grain loading stability information which is to be approved by the Document of Authorization.
    - (2) 1 copy of the calculations supporting the above mentioned grain loading stability information.

The data above, must be in complete agreement with that found in the Trim and Stability booklet.
  - b. The NCB is authorized to perform any additional stability review prerequisite to approval if, in addition to the grain loading stability information, the documentation contains stability data pertinent to other bulk cargoes or to cargoes which will be carried simultaneously with bulk grain such as deck cargo or containers on deck.
  - c. After review, NCB will forward one copy of the approved grain loading information to Commanding Officer, U.S. Coast Guard, Marine Safety Center, 400 Seventh Street S.W., Washington D.C. 20590-0001. NCB will inform the Marine Safety Center of any additional stability related review conducted and recommend an appropriate statement which may be included in the U.S. Coast Guard stability letter.
  - d. NCB will issue the Document of Authorization to the submitter. The Document of Authorization will have the format shown in enclosure (4).
3. Coast Guard Marine Safety Center Oversight. Upon receipt of the approved grain loading conditions, the Coast Guard Marine Safety Center will perform oversight to the degree necessary and forward the new stability letter to the submitter with copies to the cognizant Officer in Charge, Marine Inspection and to the NCB. A stability letter is not required if the information can be placed on the Certificate of Inspection or the Load Line Certificate.
4. Tank Vessels. Under the authority of Section 5 of the Code, a tank vessel designed solely for the carriage of liquids and which is issued a Document of Authorization, may be exempted from trimming when the vessel:
  - a. has two or more longitudinal, oil-tight bulkheads arranged so as to substantially reduce the horizontal volumetric heeling moment, and
  - b. has an adequate number of expansion trunks and access (butterworth) openings to meet the intent of Regulation 10.3.1 of the Code.

Whenever bulk grain is carried, the vessel shall not carry any liquid cargo.

5. Unmanned Barges. Unmanned barges, except for deck cargo barges, may be issued a Document of Authorization without obtaining an approved grain loading stability booklet, when calculations and supporting plans demonstrate that the barge, when loaded to its maximum load line assignment with all compartments in which it is anticipated to carry bulk grain trimmed full, meets the requirements of section 7 of the Grain Code.

If for any reason upon completion of loading a compartment is partially filled with bulk grain, the grain must be secured as described in Sections 16, 17, or 18 of the Code or else discharged from the vessel.

6. Single Voyage Document of Authorization. A vessel without a Document of Authorization and not exempted by enclosure (4), may engage in a single voyage carrying grain in bulk by:
  - a. Submitting stability calculations together with supporting plans to the NCB, for the proposed, specific loading condition. If the calculations indicate compliance with the provisions of Section 7 of the Code, a single voyage approval will be issued by the NCB prior to loading.
  - b. Upon satisfactory completion of the loading in accordance with the approved plan, a certificate of loading will be issued.

DOCUMENT OF AUTHORIZATION FORMAT

Date of issue

DOCUMENT OF AUTHORIZATION TO LOAD BULK GRAIN

Based upon a review of pertinent plans and calculations, it has been determined that the SS (or MV) \_\_\_\_\_ meets the requirements of the International Code for the Safe Carriage of Grain in Bulk. Accordingly, under the authority granted by the U.S. Coast Guard, the SS (or MV) \_\_\_\_\_ may load grain provided the ship complies with the stability information contained in the following booklet:

*Identification of booklet containing the grain loading stability information bearing an approval stamp by the National cargo Bureau, Inc. dated \_\_\_\_\_.*