

MSC Guidelines for the Review of Miscellaneous Barge Stability

Procedure Number: C1-10

Revision Date: 08/12/2016

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Purpose:

The purpose of this document is to provide guidance and information regarding the submission of stability calculations for barges regulated under 46 CFR Subchapters C or I, including deck cargo, dry cargo, hopper, and derrick or crane barges.

References:

- a. 46 CFR Subchapter S
 - b. Marine Safety Manual, Volume IV, Chapter 6
 - c. Navigation and Vessel Inspection Circular (NVIC) 5-94, Requirements for Vessels Carrying Bulk Grain Cargo
 - d. Navigation and Vessel Inspection Circular (NVIC) 17-91, Guidelines for Conducting Stability Tests
 - e. ASTM F 1321-14, "Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel"
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Contact Information:

If you have any questions or comments concerning this document, please contact the Marine Safety Center (MSC) by email or phone, and refer to Plan Review Guide Number C1-10.

Email: MSC@uscg.mil

Phone: 202-795-6731

Website: <http://homeport.uscg.mil/msc>

Responsibilities:

Using applicable portions of references (a) through (e), the submitter shall provide sufficient documentation and plans to indicate compliance with the requirements. The submission shall be made electronically to the above email address or, if paper, in triplicate to the MSC's address found on the above website. To facilitate plan review and project management, all plans and information specified in these guidelines should be submitted as one complete package through a single point of contact for the project.

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General Guidance:

- ❑ If the vessel is new and not a sister vessel, has the Application for Inspection been submitted? In general, plan review may not occur until a copy of the Application is received.
- ❑ Does the submission include all necessary information to demonstrate compliance with the applicable requirements? At a minimum, submissions should include the following:
 - General Arrangements
 - Lines, offsets, or computer disk with hull model
 - Hydrostatic Tables
 - Tank Capacity Tables/Plan
 - Ullage & Sounding Tables
 - Intact Stability calculations
 - Damage Stability calculations
 - Lifting calculations (if the vessel is equipped to lift cargo)
 - Trim and Stability Booklet
 - Application for Inspection
- ❑ Does the submission clearly state what is desired from MSC?
- ❑ Are all plans requiring Coast Guard review and/or approval submitted in triplicate (if submittal is in hard copy)?
- ❑ Are there any special/unusual requests or a time critical element involved?

Specific Topics:

- ❑ Requests for a one-time Special Loading Authorization (SLA) will be reviewed to the stability criteria contained in reference (a).
- ❑ In accordance with 46 CFR 170.110 and 170.120, a stability book or stability letter is required for each vessel, unless sufficient information can be placed on the Certificate of Inspection or Load Line certificate to enable the master to operate in compliance with applicable stability regulations.
- ❑ All barges must meet the stability criteria outlined in 46 CFR 170.170. In accordance with 46 CFR 170.160, this requirement does not apply to:
 - Deck cargo barges meeting the criteria outlined in 174.020; or
 - Barges that have an International Load Line certificate or otherwise meet the criteria contained in the International Code on Intact Stability, 2008.

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- All barges must meet the requirements of 46 CFR 174.015, in accordance with Section 6.E.5 of reference (b). The required area under the righting arm curve may be reduced to 5 foot-degrees for barges operating only on Rivers routes. This requirement does not apply to:
 - Deck cargo barges meeting the criteria outline in 174.020; or
 - Barges carrying non-shifting dry cargo only within the hull (6.E.5.b.(4) of reference (b)).

- For derrick or crane barges, the information detailed in 46 CFR 170.095 and 170.125 must also be submitted to demonstrate compliance with the stability requirements outlined in 46 CFR 173 Subpart B.

- Open hopper barge stability calculations must use the following criteria, in accordance with section 6.E.5.b.(6) of reference (b):
 - The dredged material should be considered a homogeneous liquid with a specific gravity of 2.0;
 - The free surface effect of the dredged cargo should be taken into account in all calculations; and
 - When the vessel heels or trims, the dredged cargo may be assumed to spill out of the hoppers at the appropriate angles.

- For a hopper barge without hatch covers, the following process should be followed:
 - The Load Line issuing authority should initially review the request for exempting hatch covers and forward their recommendations and assessment to the MSC.
 - The MSC will review the calculations for compliance with 46 CFR 174.015, assuming the hopper is full of seawater. If it is determined that an exemption will be granted, the MSC will send a copy of the approval to the Load Line issuing authority.

- Great Lakes dry bulk cargo vessels must meet the stability requirements of 46 CFR 172 Subpart H and section 6.E.7 of reference (b).

- Barges carrying pelletized bulk cargo such as coal, gravel, or phosphate will be evaluated on a case-by-case basis. See section 6.E.5.b.(4) of reference (b) for additional guidance.

- Barges carrying grain in bulk are generally not reviewed by the MSC. As per reference (c), authority for stability review and approval for these vessels has been delegated to the National Cargo Bureau.

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Disclaimer:

This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended to, nor does it impose, legally-binding requirements on any party. It represents the Coast Guard's current guidance on this topic and may assist industry, mariners, the general public, and the Coast Guard, as well as other federal and state regulators, in applying statutory and regulatory requirements. You can use an alternative approach for complying with these requirements, if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative, you may contact the MSC, the unit responsible for implementing this guidance.