

MSC Guidelines for Review of Miscellaneous Barge Stability

Procedure Number: T1-10

Revision Date: 07/01/03

References

- a. 46 CFR 170, Subpart F, Determination of Lightweight Displacement and Centers of Gravity
 - b. NVIC 17-91, Guidelines for Conducting Stability Tests
 - c. ASTM F 1321-92, Standard Guide for Conducting a Stability Test (Inclining and Lightweight Survey) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel
 - d. Marine Safety Manual, Volume IV, Chapter 6
 - e. 46 CFR 170, Subpart E, Weather Criteria
 - f. 46 CFR 174, Subpart B, Special Rules Pertaining to Deck Cargo Barges
 - g. 46 CFR 173, Subpart B, Lifting
 - h. NVIC 5-94, Requirements for Vessels Carrying Bulk Grain Cargo
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Disclaimer

These guidelines were developed by the Marine Safety Center staff as an aid in the preparation and review of vessel plans and submissions. They were developed to supplement existing guidance. They are not intended to substitute or replace laws, regulations, or other official Coast Guard policy documents. The responsibility to demonstrate compliance with all applicable laws and regulations still rests with the plan submitter. The Coast Guard and the U. S. Department of Homeland Security expressly disclaim liability resulting from the use of this document.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center by e-mail or phone. Please refer to the Procedure Number: **T1-10**

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General Review Guidance

- ❑ For inspected barges, if the vessel is new and not a sister vessel, has the Application for Inspection been submitted? In general, no plan review will occur until receipt of a copy of the Application. However, this MSC Guideline also applies to uninspected barges.
 - ❑ Is it clearly stated what is desired from the MSC? Are all plans requiring Coast Guard review and/or approval submitted in triplicate? Are there any special or unusual requests involved?
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- ❑ Is the vessel being reviewed under NVIC 3-97? If yes, then MSC review of stability items is not required.
- ❑ Verify Lightweight Characteristics utilizing one of the following methods:
 - 1) Does a sister vessel, with known characteristics, exist?
 - 2) Has a detailed estimate of the characteristics been provided by the owner/designer?
 - 3) Has an approved procedure and subsequent stability test been performed in accordance with references (a), (b), and (c)?
- ❑ Ensure the following drawings (items) are submitted:
 - ❑ General Arrangements
 - ❑ Lines, offsets, or computer disk with hull model
 - ❑ Hydrostatic Tables
 - ❑ Tank Capacity Tables
 - ❑ Draft Mark Locations
- ❑ For Deck Cargo Barges: If acceptable to the owner/designer and the barge falls within the bounds specified by reference (d), Section E.5.b(5)(a) & (b) and reference (e), Section 174.020, then stability calculations do not have to be performed and the limits specified may be placed upon the subject vessel's stability letter.
- ❑ If the barge falls within the bounds specified by reference (d), Section E.5.b(5)(a) & (b) and reference (e) Section 174.020, and is manned, then ensure that the required GM is increased by 1 foot.
- ❑ For all barges requiring stability calculations, compare actual GM with the GM required by reference (e). Ensure actual GM is larger than required GM in all loading conditions.
- ❑ For Deck Cargo Barges (requiring stability calculations) and Derrick Barges: Verify compliance with the righting energy requirements of reference (f). Note that a 5 foot-degree requirement may be applied for service on protected waters (see reference (d)).
- ❑ For Open Hopper Barges: Check to ensure the following conditions were applied when performing calculations required by reference (f):
 - ❑ The dredged material is 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

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- ❑ When the vessel heels or trims, the dredged cargo may be assumed to spill out of the hoppers at the appropriate angles.
 - ❑ For Open Hopper Barges: When a submitter requests to operate the barge without hatch covers, the following process should be followed:
 - ❑ The submitter should have the Load Line issuing authority review their request for exempting hatch covers.
 - ❑ The Load Line issuing authority will then forward their recommendation/assessment to MSC.
 - ❑ MSC will review and make a determination on the exemption. The MSC will review the calculations in accordance with the criteria in reference (f), assuming that the hopper is full of seawater. We may conduct our review when we receive the calculations and make a comment on our letter stating that the calculations were performed assuming the hopper was full of seawater.
 - ❑ For Derrick Barges: Check compliance with references (d) and (g) for requirements applying to the use of the crane or derrick.
 - ❑ For Dry Cargo Barges (Within Hull Only): Barges that carry only non-shifting dry cargo below the main deck do not have to demonstrate compliance with the criteria specified in reference (f) or 46 CFR 172, Subpart B. For barges that carry shifting cargo, such as grain, the stability review is conducted by the National Cargo Bureau on our behalf (see reference (d) section E.6.c and reference (h)).
 - ❑ Check the location of downflooding and ensure this is taken into account for compliance with the stability criteria.
 - ❑ If a deck cargo barge is seeking a one-time voyage Special Loading Authorization (SLA), check the file for current stability letter and restrictions. Verify calculations submitted comply with references (e) and (f).
 - ❑ The MSC may construct a computer hull model from the lines, offsets, or provided disk, and independently verify the stability of the vessel using the computer model.
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Definitions

Downflooding Point: The lowest opening on a vessel that allows the entry of seawater into the hull or superstructure of an undamaged vessel due to heel, trim, or submergence of the vessel.