

MSC Guidelines for Liquefied Gas Barge General Arrangements

Procedure Number: C1-29

Revision Date: June 11, 2018

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Purpose: To establish a procedure for reviewing general arrangement plans for a liquefied gas barge with independent pressure tanks regulated under 46 CFR Subchapters D and/or O.

References:

- a) International Convention for the Prevention of Pollution from Ships, 1973, as modified by its Protocol of 1978 (MARPOL), as amended
- b) 46 CFR Subchapter D
- c) 46 CFR Subchapter O
- d) CG-ENG Policy Letter 02-15, "Design Standards for U.S. Barges Intending to Carry Liquefied Natural Gas in Bulk," dated April 10, 2015

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 C1-29.

Email: MSC@uscg.mil
Phone: 202-795-6731
Website: <http://www.dco.uscg.mil/msc>

Responsibilities: Using applicable portions of references (a) through (d), 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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Applicability:

- ❑ These guidelines strictly apply to non-self propelled barges carrying liquefied gases in bulk.
- ❑ The design of the barge shall comply with the applicable Subchapter for the cargoes authorized for carriage. The table below shows the current list of liquefied gases and the required applicable Subchapters of 46 CFR:

ChemCode	Cargo Name	Subchapter
AMA	Ammonia, anhydrous	O
ARG	Argon, liquefied	O
BBM	Butadiene, butylene mixtures (containing Acetylenes)	D/O
BDI	Butadiene	D/O
BUT	Butane (n-isomer)	D
IBT	Butane (iso-isomer)	D
BTN	Butylene	D
CDO	Carbon dioxide, liquefied	O
CLX	Chlorine	O
DCF	Dichlorodifluoromethane	O
DDA	2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less)	O
DMA	Dimethylamine	D/O
ETH	Ethane	D
ETL	Ethylene	D
EOX	Ethylene oxide	D/O
MTH	Methane	D
MAP	Methyl acetylene, propadiene mixture (MAPP)	D/O
MTB	Methyl bromide	D/O
MTC	Methyl chloride	D/O
MCF	Monochlorodifluoromethane	O
NXX	Nitrogen, liquefied	O
PRP	Propane	D
PPL	Propylene	D
POX	Propylene oxide	D/O
PPM	Propylene, propane, MAPP gas mixture (containing 12% or less MAPP gas)	D
PYG	Pyrolysis gasoline (containing butadiene, having 10% benzene or more)	D/O
SFD	Sulfur dioxide	O
VCM	Vinyl chloride	D/O

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- ❑ If the cargoes to be carried are **not flammable** or **combustible**, as indicated by the fire protection requirement in 46 CFR Table 151.05, then Subchapters O and D **or** Subchapters O and I apply to the barge. The option for applying D or I is left up to the barge owner. The owner must request I/O certification on the Application for Inspection, otherwise the barge will be regulated under D/O. (see 46 CFR 151.01.10(c))
 - ❑ Cargoes not listed in the table above:
 - Cargoes not listed in 46 CFR 30.25-1 or Table 151.05 must have approval from CG-ENG-5.
 - ❑ Additional provisions for oceangoing barges carrying cargoes regulated under 46 CFR Subchapter O:
 - As per 46 CFR 153.1, Part 153 only applies if the barge is oceangoing and carries Category A, B, or C Noxious Liquid Substance cargoes.
 - ❑ Manned barges have additional regulatory requirements which must be evaluated by the Office of Domestic Vessel Compliance (CG-CVC-1) and Commandant (CG-ENG-5).
 - ❑ If the barge carries Liquefied Natural Gas, the provisions of reference (d) apply.
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General Review 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 clearly state what is desired from MSC?
- ❑ Are there any special/unusual requests or a time-critical element involved?
- ❑ Are all plans requiring Coast Guard review and/or approval submitted in triplicate (if submittal is in hard copy)?

MSC Guidelines for Liquefied Gas Barge General Arrangements

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- Does the submission include all necessary information to support compliance with the applicable requirements? At a minimum, general arrangement plans should include the following:
 - Inboard profile. Indicate the following:
 - Collision bulkhead;
 - All other watertight transverse bulkheads;
 - All watertight decks;
 - All openings in these decks and bulkheads and their means of closure (indicate the type of all watertight doors); and
 - Double-bottom arrangement.
 - Outboard profile. Indicate the following:
 - Load line;
 - Design water line;
 - Draft marks;
 - Breakwater and coamings;
 - Bulkhead and freeboard decks; and
 - Navigation bridge visibility (for Articulated or Integrated Tug and Barges).
 - Plan of each deck or space. Indicate the following:
 - Ladders and stairways;
 - Means of escape from each applicable space;
 - Accommodations with sufficient detail to show size and required sleeping, sanitation, and recreation spaces;
 - Double-hull arrangement;
 - Location of all downflooding points in watertight decks; and
 - Towing arrangements, if applicable.
 - Reference system (such as frame numbers) so that the locations of all spaces and bulkheads can be determined.
 - All spaces should be clearly labeled. If the function of the space is unclear from its name, include a description of what machinery, cargo, etc. is inside.

General Review Procedure:

- Barges must meet the following requirements:
 - Deck spill containment: 33 CFR 155.310
 - Prohibited spaces: 33 CFR 155.470
 - Slop tanks: 33 CFR 157.15
 - Double hull:
 - Inland: 33 CFR 157.10d(d)(1) & (2)
 - Oceangoing: 33 CFR 157.10d(c)(1) & (2)
 - Collision bulkhead: 33 CFR 157.10d(e)

MSC Guidelines for Liquefied Gas Barge General Arrangements

Procedure Number: C1-29

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- Barges carrying Liquefied Flammable Gas cargoes must meet the following additional requirements under Subchapter D:
 - Subdivision of cargo space: 46 CFR 32.60-10
 - Segregation of cargo: 46 CFR 32.60-10
 - Pump room segregation: 46 CFR 32.60-20
 - Hull and cargo tank requirements: 46 CFR 32.63-25(b)(2)
 - Ventilation intakes: 46 CFR 38.05-1(b)
 - Cofferdams: 46 CFR 38.05-1(d)
 - Cargo space access: 46 CFR 38.05-1(e)
 - Hull type: 46 CFR 38.05-1(f)
 - Cargo tank access: 46 CFR 38.05-2 (f)
 - Independent tank clearance: 46 CFR 38.05-10(e)
 - Weather deck: 46 CFR 38.05-10(g)(3)

- Vessels regulated under Subchapter O must meet the following additional requirements:
 - Any cargo specific requirements as outlined in 46 CFR Table 151.05
 - Hull type: 46 CFR 151.15-3(d)
 - Inspection clearances: 46 CFR 151.15-3(d)(2)
 - Tank access openings:
 - Inland: 46 CFR 151.15-3(d)(3)
 - Oceangoing: 46 CFR 153.217, .219, .254, & .256
 - Open hopper barges with independent tanks must meet the plowshare breakwater and coaming requirements: 46 CFR 151.10-20(a)(2) & (3)

- Manned barges must meet the following additional requirements:
 - Guardrails and bulwarks: 46 CFR 32.02-10 or 46 CFR 92.25
 - Location of Accommodation Spaces: 46 CFR 32.56-5(b) as referenced by 46 CFR 32.40-60
 - Berthing requirements: 46 CFR 32.40-20(b)
 - Means of escape: 46 CFR 32.02-1
 - Any other requirements prescribed by CVC-1 or CG-ENG-5

- If the barge will have international certificates, it must meet the following additional requirements:
 - Sludge tanks: MARPOL 73/78, Annex I Regulation 12 (and 12A, if oil fuel capacity is 600 m³ and above)

- **NOTE:** If the vessel is also equipped to carry oil or noxious liquid substances in bulk (as defined in MAPROL 73/78 Annex I and Annex II), refer to PRG C1-16 for additional requirements

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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.