



GUIDE FOR

LIQUEFIED GAS CARRIER STORAGE SERVICE

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**American Bureau of Shipping
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Foreword

As global demand for liquefied gas grows, there is a corresponding growth in the global fleet of Liquefied Gas Carriers (LGCs), Floating liquefied gas terminals, bunker vessels and floating storage and regasification vessels. Small-scale consumers such as power plants at remote locations require storage facilities near shore and various factors suggest the use of floating storage units with or without regasification. ABS has developed this Guide to provide classification requirements for LGCs that for certain periods may be used for storage service that are berthed alongside a jetty in sheltered waters or at a protected location that enables the unit to quickly move away from a severe weather event. LGCs that comply with this Guide may in some cases extend the required drydocking period.

This Guide references relevant international Regulations and guidelines that are considered to be applicable. While it is the intent of the Guide to be consistent with these Regulations and guidelines, it is the ultimate responsibility of the users of this Guide to refer to the most recent text of those Regulations and guidelines.

This Guide is to be used in conjunction with other ABS Rules and IMO Regulations.

This Guide is for the use of designers, builders, owners and operators of liquefied gas carriers and specifies the ABS requirements for obtaining the optional classification notation **Storage Service**.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



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SECTION 1 Scope and Conditions of Classification (Supplement to the ABS Rules for Conditions of Classification)

1 Classification

The requirements for conditions of classification are contained in the separate, generic *ABS Rules for Conditions of Classification (Part 1)*. Additional requirements specific to Liquefied Gas Carrier (LGC), Storage Service are contained within this Guide.

3 Application

This Guide is applicable to liquefied gas carriers that may for certain periods be used for storage service while they maintain their appropriate liquefied gas carrier classification. The **Storage Service** notation is optional and only applicable when the vessel's propulsion machinery is also to be retained to **AMS** classification requirements.

This Guide is intended to cover the requirements specific for LGCs, which serve only in a storage capacity at a single designated location that is berthed alongside a jetty in sheltered waters or at a protected location that enables the unit to quickly move away from a severe weather event.

Storage Service, for the purpose of this Class notation means:

- i) Vessel is stationed at a single location, does not transit between ports or different sites and does not carry/discharge cargo between ports or sites.
- ii) When the vessel leaves the designated "storage service" location, other than to take refuge from severe weather, the "storage service" provisions provided herein no longer apply.
- iii) The vessel is not to transport and discharge liquefied cargo to a port or terminal when taking refuge from weather. It is envisioned that voyages, without cargo, may be necessary for repair works or to a lay-up site when the storage service is seasonal.
- iv) The vessel can only depart the designated "storage service" location when it is loaded within the range of approved filling levels.

Mooring, import/export systems and shore-transfer arrangements are the responsibility of the Owner, including compliance with flag and Coastal State requirements.

5 Classification Symbols and Notations

LGCs built to the satisfaction of the ABS Surveyors to the additional requirements of this Guide, where approved by the Committee for service may be classed and distinguished in the *Record* by the notation **Storage Service** inserted after the appropriate liquefied gas carrier notations. For example:

- i) **✕ A1 Liquefied Gas Carrier, Storage Service** or **A1 Liquefied Gas Carrier, Storage Service**
- ii) **✕ A1 Liquefied Natural Gas Carrier, Storage Service** or **A1 Liquefied Natural Gas Carrier, Storage Service**
- iii) **✕ A1 Liquefied Gas Carrier with Independent Tanks, Storage Service** or **A1 Liquefied Gas Carrier with Independent Tanks, Storage Service**

7 Flag and Coastal State Administrations

Requirements additional to those given in the Guide may be imposed by the flag and Coastal State Administrations with whom the vessel is registered or by the Administration within whose territorial jurisdiction the vessel is intended to operate.

9 Submission of Plans

Where modifications are required for the LGC, the plans as required in relevant sections of *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)*, in particular Part 5C, Chapter 8 for Vessels Intended to Carry Liquefied Gases in Bulk and Part 5C, Chapter 12 for Liquefied Gas Carriers with Membrane Tanks, and the *IMO International Code for the Construction and Equipment of Ships carrying Liquefied Gases in Bulk (IGC Code)* are to be submitted to ABS for review. These include, but are not limited to:

- Cargo operations manual
- Statutory drawings including stability
- Hull structure and equipment foundation
- Boil-off gas management
- Liquefied gas cargo piping and equipment

Additional documents to be submitted for the Storage Service notation are:

- Design Basis as required by Subsection 2/1
- Sloshing Analysis as required by Subsection 2/3



SECTION 2 Design Review

1 Design Basis

A Design Basis for the vessel that addresses the applicable parts of 1.1.10 of the IGC Code is required to be submitted. The Design Basis is to include the site location showing the berthing arrangements and or fixed mooring location and mooring configuration. Unless the vessel is to be moored hard up to the berth, the geographic location of the vessel (while in storage service) is required to be specified.

3 Sloshing Analysis

Where it is intended that the vessel will be loaded and offloaded while moored at a protected location, but not hard up against a berth, the suitability of the containment system and hull structure will be reviewed for sloshing loads using site-specific conditions with a ten (10) year return interval over the full range of loading conditions from full to empty.



SECTION 3 Surveys

1 Conversion to Storage Service

1.1 Survey Requirements

Provided the work associated with the conversion is carried out in accordance with approved plans to the satisfaction of the attending Surveyor, he will issue a report recommending Classification as Storage Service.

3 Surveys After Construction

3.1 General

LGCs in storage service will be surveyed in accordance with the applicable sections of the *ABS Rules for Survey After Construction (Part 7)*, including the requirements for lightering service, except as noted below:

3.3 Drydocking Surveys

3.3.1

The vessel is to be properly prepared for the extended positioning. The preparation would normally include a complete Special Survey appropriate to the age of the vessel, in accordance with 7-3-2/5.11 of the *ABS Rules for Survey after Construction (Part 7)* and preparation of the underwater parts in accordance with Appendix 7-A-1 of the *ABS Rules for Survey after Construction (Part 7)*. All requirements for Survey and thickness measurements are to be applied. Drydocking Surveys will continue to be required at the regular rule required intervals (normally twice in a 5 year special survey period). However, Underwater Inspection in Lieu of Drydocking (UWILD) examination may be carried out to meet the Drydocking requirements as noted in 3/3.3.2 below, provided the vessel's flag administration is in concurrence with same with regard to the statutory certificates issued on their behalf. Owner's plan for the UWILD is to be reviewed by the attending Office and agreed upon by the respective Assistant Chief Surveyor's (ACS) Office before the survey commences and same is to be discussed during the pre-planning meeting held onboard.

3.3.2

For vessels less than 15 years of age the drydocking requirements for Special Survey and Intermediate survey may be accomplished by UWILD for up to 10 years of storage service. For vessels that are over 15 years of age the Intermediate survey drydocking will be permitted to be accomplished by UWILD, the Special Survey drydocking will be required to be an out-of-water docking.

For vessels exceeding 15 years of age, the time allowable where UWILD is applied may be extended to a maximum of 10 years (in storage service) in special circumstances where agreed to by the Assistant Chief Surveyor.

Special consideration may be given by the Chief Surveyor to allow UWILD for additional inspections, in Lieu of Drydocking, beyond 10 years (in storage service) subject to agreed plans and arrangements being put in place and provided the flag administration is in concurrence with same.

3.3.3

Upon completion of the storage service, the vessel is required to proceed to drydock for an out of water drydocking survey if the vessel has been in Storage Service for five years or more since the last out-of-the-water docking.