
**Petroleum and natural gas industries —
Installation and equipment for liquefied
natural gas — Ship-to-shore interface and
port operations**

*Industries du pétrole et du gaz naturel — Installations et équipements
relatifs au gaz naturel liquéfié — Interface terre-navire et opérations
portuaires*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 28460 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

Introduction

The original liquefied natural gas (LNG) business was based on long-term sale and purchase agreements with essentially dedicated fleets and terminals and each party having a thorough understanding of the particular ship/shore interface, which resulted in a safe and reliable operation.

The considerable growth of the LNG short-term and spot cargo markets has resulted in the requirement to ensure that the ship/shore interface issues are standardized and well understood to ensure the continuing safe transportation of LNG.

It is necessary that each LNG port facility and terminal have its own specific safety and operational systems and that LNG carriers using the facility comply with these systems. For all vessels, it is necessary to take particular care to ensure that the basic requirements laid down in this International Standard are understood and applied at each cargo transfer in order to ensure the safe, secure and efficient transfer of cargo between ship and shore or vice versa.

This International Standard relates to marine operations during the vessel's port transit and the transfer of cargo at the ship/shore interface taking into account the publications of the International Maritime Organization (IMO), the Society of International Gas Tankers and Terminal Operators (SIGTTO), the International Group of Liquefied Natural Gas Importers (GIIGNL) and the Oil Companies International Marine Forum (OCIMF). Relevant publications by these and other organizations are listed in the Bibliography.

It is not necessary that the provisions of this International Standard be applied retrospectively and it is recognized that national and/or local laws and regulations take precedence where they are in conflict with this International Standard.

Petroleum and natural gas industries — Installation and equipment for liquefied natural gas — Ship-to-shore interface and port operations

1 Scope

This International Standard specifies the requirements for ship, terminal and port service providers to ensure the safe transit of an liquefied natural gas carrier (LNGC) through the port area and the safe and efficient transfer of its cargo. It is applicable to

- a) pilotage and vessel traffic services (VTS);
- b) tug and mooring boat operators;
- c) terminal operators;
- d) ship operators;
- e) suppliers of bunkers, lubricants and stores and other providers of services whilst the LNG carrier is moored alongside the terminal.

This International Standard includes provisions for

- a ship's safe transit, berthing, mooring and unberthing at the jetty;
- cargo transfer;
- access from jetty to ship;
- operational communications between ship and shore;
- all instrumentation, data and electrical connections used across the interface, including OPS (cold ironing), where applicable;
- the liquid nitrogen connection (where fitted);
- ballast water considerations.

This International Standard applies only to conventional onshore liquefied natural gas (LNG) terminals and to the handling of LNGC's in international trade. However, it can provide guidance for offshore and coastal operations.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IMO¹⁾, *International ship and port facility security code (ISPS Code)*, 2003

IMO, *International code for the construction and equipment of ships carrying liquefied gases in bulk (IGC Code)*, 1993

SOLAS²⁾ chapter II-2 and chapter V, regulation 12

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1 communication

all methods of transmitting written or verbal information, including information covered by data links

3.1.2 control room

area situated in the terminal from which cargo operations are monitored and controlled

3.1.3 conventional onshore LNG terminal

LNG export or receiving terminal that is located on-shore and that has a marine transfer facility for the loading or unloading of LNG carriers in a harbour or other sheltered coastal location

NOTE The transfer facility consists of a wharf or fixed structure capable of withstanding the berthing loads of a fully laden LNG carrier of a given specification and mooring the vessel safely alongside. This includes any structure connected to the shore by a trestle, tunnel or other means, facilitating the LNG transfer and ancillary services and providing safe access and egress for personnel performing maintenance or operational duties.

3.1.4 emergency release system ERS

system that provides a positive means of quick release of transfer arms and safe isolation between ship and shore, following a predefined procedure including an **emergency shut-down** (ESD)

NOTE The operation of the emergency release system can be referred to as an "ESD II".

3.1.5 emergency shut-down ESD

method that safely and effectively stops the transfer of LNG and vapour between ship and shore or vice versa

NOTE The operation of this system can be referred to as an "ESD I". Ship/shore ESD systems should not be confused with other emergency shut-down systems within the terminal or on board ship.

1) IMO International Maritime Organization

2) SOLAS: International Convention for Safety of Life at Sea.