

LNG Operating Regulations Including LNG Bunkering

GOTHENBURG ENERGY PORT

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INTRODUCTION

GENERAL

This publication specifies the Port of Gothenburg's regulations regarding LNG cargo handling and LNG bunkering in the Port of Gothenburg and adjacent anchorage areas.

These regulations are valid in combination with Port of Gothenburg general harbour regulations.

DEFINITIONS

Hazardous area – zones 0, 1 and 2 in which an explosive gas mixture is expected to occur during normal handling in accordance with IEC 60079-10 and IEC 60092-502.

Safety zone – an area that must be established around the LNG bunkering station/facilities to control ignition sources and ensure that only essential personnel and activities are allowed in the area that could be exposed to flammable gas in case of accidental release of or other incident involving LNG or natural gas during bunkering.

Security Zone (No movement zone) – an area that must be defined and established around the LNG bunkering area to monitor and control external activities e.g. ship movements or vehicles that can lead to incidents that threaten the operation. The security zone may result in limit access for personnel and/or public. The security zone will always be larger than the safety zone.

IGF Code – IMO International Code of Safety for Gas-Fuelled Ships and other low-flashpoint fuels.

IGC – the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk.

ISO 20519:2017 – Ships and marine technology – Specification for bunkering of liquefied natural gas fuelled vessels.

CONTACT PERSON REGARDING THIS PUBLICATION



Capt. Dan-Erik Andersson

COO

Port of Gothenburg

E-mail: dan-erik.andersson@portgot.se

www.goteborgshamn.se

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GENERAL

All regulations remain unaltered whether the LNG bunker vessel or LNG vessel is empty or not, if it is partially or fully loaded, or approaching or leaving the port.

LNG vessel traffic in the port is subject to the Port Bye-laws, Port Regulations and National Regulations.

2.1 GENERAL

All bunkering operations in the Port of Gothenburg harbour area are subject to the Port Bye-laws and Port Regulations. In order to perform ship to ship bunkering the following conditions must be met:

- The bunker vessel must have accreditation from Port of Gothenburg (see 2.1.1).
- The receiving vessel must comply with the IGF code.
- The terminal must have a Port of Gothenburg-approved safety management system and routines for allowing bunker operations alongside terminal berths with or without simultaneous cargo operations (see 2.1.3).
- All bunkering operations must be approved by Port of Gothenburg.

2.1.1. Bunker vessel criteria

The bunker vessel must:

- be built according to the IGC code.
- have accreditation from The Swedish Transport Agency.
- be inspected according to the Green Bunkering concept.
- have a class approved bunker procedure and operating instructions.
- hold proof of adequate training and certification according to STCW and the standard ISO 20519:2017.
- participate in a risk analysis based on the LNG Bunker Safety Checklist together with port representatives.
- present a nautical assessment and mooring arrangement plan with a Optimoore mooring study.
- present a case study on previous ship to ship operations and provide the Port with any previous non-conformities.

2.1.2 Receiving vessel criteria

The receiving vessel must fully comply with the IGF code and also have a safe bunkering procedure, which is carried out according to the approved ISM manual onboard.

The receiving vessel should comply with the standard ISO 20519:2017 or similar.

2.1.3 Terminal criteria

The terminal must have safe bunkering procedures which are carried out according to the approved safety manual.

2.2 APPLICABLE REGULATIONS AND STANDARDS

- National Regulations.
- IMO IGF-code.
- ISO 20519:2017.
- Port Bye-laws.
- General harbour regulations for Port of Gothenburg.
- Operating regulations for Energy Port Gothenburg.

2.3 HAZARDOUS, SAFETY AND SECURITY ZONES

Hazardous area classification is compulsory for the bunkering station according to SRVFS 2004:7 and its standard IEC 60079-10 and for ships as per standard IEC 60092-502.

Additional to the hazardous areas a safety zone must be established around the bunkering station prior to all LNG bunkering operations.

The safety zone is an area around the LNG bunkering station/facilities to control ignition sources and ensure that only essential personnel and activities are allowed in the area that could be exposed to flammable gas in case of accidental release of or other incident involving LNG or natural gas during bunkering.

Prior to determination of a specific safety zone at a terminal, vapour dispersion data should be calculated for the largest credible leak, based on a risk assessment.

The safety zone should never be smaller than the hazardous area distances stated for the receiving vessel, bunker barge, terminal facility or truck.

Safety zone distances in Port of Gothenburg as stated below:

TYPE OF VESSEL	SEA SIDE	BUNKER STATION AT VESSELS
LNG /LPG /Tanker	25 metres	25 metres
Container / Bulk	25 metres	25 metres
Ro/Ro	25 metres	25 metres
Ferries	25 metres	25 metres

The vertical safety zone is usually 25 metres above or below the stated hazardous area.

A security zone or No movement zone must be defined and established around the LNG bunkering area to monitor and control external activities e.g. ship movements or vehicles that can lead to incidents that threaten the operation. The security zone may result in limit access for personnel and/or public. The security zone should never be smaller than the safety zone. Prior the operation starts the security zone has to be communicated to all parties it may concern such as adjacent terminals, other vessels and the Port Authority.

2.4 SAFETY ZONE WHILE MOORED DURING LNG SHIP TO SHIP BUNKERING OPERATION

The safety zone at the sea side is set to 25 metres. LNG bunkering must be stopped if a vessel or craft comes closer than the safety zone.

2.5 WEATHER CONDITION REQUIREMENTS

No ship to ship bunkering is allowed in Port of Gothenburg when wind force exceeds 20 m/s. Current wind speed can be obtained from VTS Gothenburg on VHF channel 13.

2.6 SPECIAL PROVISIONS FOR BUNKERING GAS AND PETROLEUM PRODUCTS

LNG and FO/DO manifold on-board and ashore should be separated into independent manifolds and spillage containments for each type of purpose.

- Oil bunkering to LNG-powered vessel is allowed simultaneously with LNG bunkering.
- Oil bunkering to LNG vessel during LNG cargo transfer operation is not allowed.

2.7 LNG BUNKER TRUCK

The truck to ship bunker operation is comparable to a bunker operation between a bunker vessel and receiving ship so the same regulations apply but a separate checklist must be filled in.

To operate an LNG bunkering vehicle at Port of Gothenburg, the operator of the vehicle must upon request show an approved ADR training certificate and knowledge of the terminal safety manual regarding the LNG bunkering procedure.

2.8 BUNKERING PROCEDURES AND REQUIREMENTS

The maximum pressure and pump rate during bunkering is based on the terminal's and the receiving vessel's receiving capacity. These figures should be filed in the Bunker Safety Checklist.

If an emergency arises in the terminal, not affecting the vessel's operation, the terminal will inform the vessel, bunker vessel and/or LNG truck over VHF radio or other agreed communication method.

If an emergency arises in the terminal affecting the vessel, bunker vessel and LNG truck operations, any decision to abandon vessels or leave berth is the master's or harbor master's responsibility.

Double banking of LNG bunker vessels alongside receiving vessel is not allowed.

LNG bunker vessels and receiving vessels which intend to load or bunker shall be aware of the general operating regulations for the respective terminal.

All terminal lighting and cables that interfere with the safety zone of the LNG vessel or LNG truck shall be switched off in a way that the lights are totally without any power supply. This is not applicable if the equipment is EX-proof.

Equipment such as ro-ro ramps, gangways, hydraulic/pneumatic tools/equipment which could cause sparks/heat during movement or malfunction are not allowed to be used inside the safety zone.

Passengers shall be informed when LNG transfer operations are in progress, by means of warning signs (no smoking, no open lights etc.) and limitation of access to weather decks on the side where the LNG transfer is being carried out.

2.9 LNG BUNKER SAFETY CHECKLIST

At the Port of Gothenburg, a dedicated LNG Bunker Safety Checklist is used to secure the LNG bunkering operation in a step by step process. The ship-specific LNG Bunker Safety Checklist should be filled in in such way that all risks of the receiving vessel's cargo handling including passenger handling have been considered and determined.

3.1 VESSELS

Responsibility for the safe conduct of operations while a ship is receiving bunker by barge, truck or pipe to jetty facility, is shared responsibility between the master of the receiving vessel, the bunker vessel, the truck driver and the person in charge (PIC) of the Shore to Ship Facility.

All parties remain responsible for shutting down the operation in order to prevent incidents and accidents irrespective of the cause of any arising problem.

The master of the vessel is responsible for all operations controlled and supervised from the vessel, the master of the bunker vessel is responsible for all operations controlled and supervised from the bunker vessel.

3.2 TANKER TRUCKS

The tanker truck driver is responsible for all operations controlled from the tanker truck. The tanker truck driver shall monitor the entire bunkering process, from start to finish. Bunkering may not under any circumstances whatsoever be left unattended.

3.3 SHORE TO SHIP FACILITY

The person in charge (PIC) of the Shore to Ship Facility is responsible for all operations controlled from the facility. The PIC shall monitor the entire bunkering process at the shore facility as well as the jetty facility, from start to finish. Bunkering may not under any circumstances whatsoever be left unattended. A separate Shore to Ship checklist must be filled in.

3.4 TERMINAL

The terminal must have a procedure regarding safe bunkering and cargo operations. The terminal representative is responsible for establishing an overall contingency plan in case of an emergency involving LNG.

The terminal representative will ensure that no one from shore violates the set and agreed safety zone at the terminal and sea side. The terminal representative should also ensure that the LNG truck (if applicable) is parked correctly and has not been blocked by any vehicle. The LNG truck shall be parked in a way that immediate departure is available, without maneuvering.

The terminal representative should check that all safety precautions have been made according to terminal regulations.

