

LNG Operating regulations including LNG Bunkering

GOTHENBURG ENERGY PORT

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INTRODUCTION

GENERAL

This publication is 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 with LNG or natural gas during bunkering.

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

IMO resolution MSC.285(86) – interim guidelines on safety for natural gas-fuelled engine installation in ships until the IGF-code comes into force.

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

ISO TC 67 WG 10 – standardization committee responsible for developing technical standards for Liquefied Natural Gas (LNG) installations, handling and equipment.

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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 a ship to ship bunkering the following conditions must be met:

- Bunker vessel must have accreditation from Port of Gothenburg (see 2.1.1).
- Receiving vessel must comply with interim guidelines of IMO MSC 285(86).
- Terminal must have an by 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

Bunker vessel shall:

- be built according to IGC-code.
- be inspected according to the Green bunkering concept.
- hold proof of adequate training and certification according to STCW and interim guidelines MSC 285(86).

2.1.2 Receiving vessel criteria

Receiving vessel must fully comply with interim guidelines of IMO MSC 285(86) and the IGF-code when it comes into force as well as has a safe bunkering procedure, which are carried out according to approved ISM-manual onboard.

2.1.3 Terminal criteria

Terminal must have safe bunkering procedures which are carried out according to approved safety manual.

2.2 APPLICABLE REGULATIONS

- National regulations.
- Interim guidelines of IMO MSC 285(86).
- Port Bye-laws.
- General harbour regulations for Port of Gothenburg.
- Operating regulations for the Energy port Gothenburg.

2.3 HAZARDOUS ZONES AND SAFETY ZONE

Hazardous area classification of the bunkering station according to SRVFS 2004:7 and the given standard IEC 60079-10 and for ships the standard IEC 60092-502, are compulsory.

Additional to the hazardous areas a Safety zone must be established around the bunkering station prior 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 with LNG or natural gas during bunkering.

Prior the 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 less 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	TERMINAL
LNG /LPG /Tanker	25 meters	25 meters	25 meters
Container / Bulk	25 meters	15 meters	15 meters
Ro/Ro	25 meters	25 meters	15 meters
Ferries	25 meters	25 meters	25 meters

The vertical safety zone is usually 15 meters above or below stated hazardous area.

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

The Safety zone at the sea side set to 25 meters. The LNG bunkering must be stopped if a vessel or craft come closer than the safety zone.

Additionally for Lo/Lo vessels, if any container interferes with Safety zone, the entire container bay to be included to 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 driven vessel is allowed simultaneously as LNG bunkering.
- Oil bunkering to LNG vessel during cargo transfer operation of LNG 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 and hence the same regulations and checklist must be filled in.

To operate a LNG bunkering vehicle at Port of Gothenburg, the operator of the vehicle must upon request show an approved ADR education and knowledge of the terminal safety manual regarding 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 vessels 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, decision to abandon vessels or leave berth is masters or harbor master's authority.

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

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

All terminal lightning and cables, which interferes with the Safety zone of the LNG vessel or LNG truck shall be switched off in a way of that the lights are totally powerless. This is not applicable if equipment is EX-proof.

Equipment such as ro-ro ramps, gangways, hydraulic/pneumatic tools/equipment which could cause spark/heat during movements or malfunction are not allowed to be used inside the Safety Zone.

Passengers shall be informed of LNG transfer operations is in progress, in 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 carried out.

2.9 LNG BUNKER SAFETY CHECKLIST

At the Port of Gothenburg, dedicated LNG Bunker Safety checklist is used to step by step secure the operation of the LNG bunkering. 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 passengers handling has been considered and determined.

3.1 VESSELS

Responsibility for the safe conduct of operations while a ship is receiving bunkers by barge, or truck, is shared jointly between the master of the receiving vessel, the bunker vessel and the truck driver.

All parties remain responsible for shutting down the operation in order to prevent incidents and accidents un-regarded of the cause of action.

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 and the truck driver is responsible for all operations controlled from the truck.

3.2 TERMINAL

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

The terminal representative will ensure that no one from shore will violate 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 correct and has not been blocked by any vehicle. The LNG truck shall be parked in a way that immediate take off is available, without maneuvering.

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

