

PORT OF PORI LTD

OPERATING INSTRUCTIONS OF THE CHEMICAL PORT

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1 Operating principle of the port

The operating principle of the Port is based on the Port Regulations, which can be found at address www.portofpori.fi

2 General

This publication is Port of Pori Ltd's guidelines concerning all cargo handling and bunkering in the sea areas/anchorages in the chemical harbour or its vicinity.

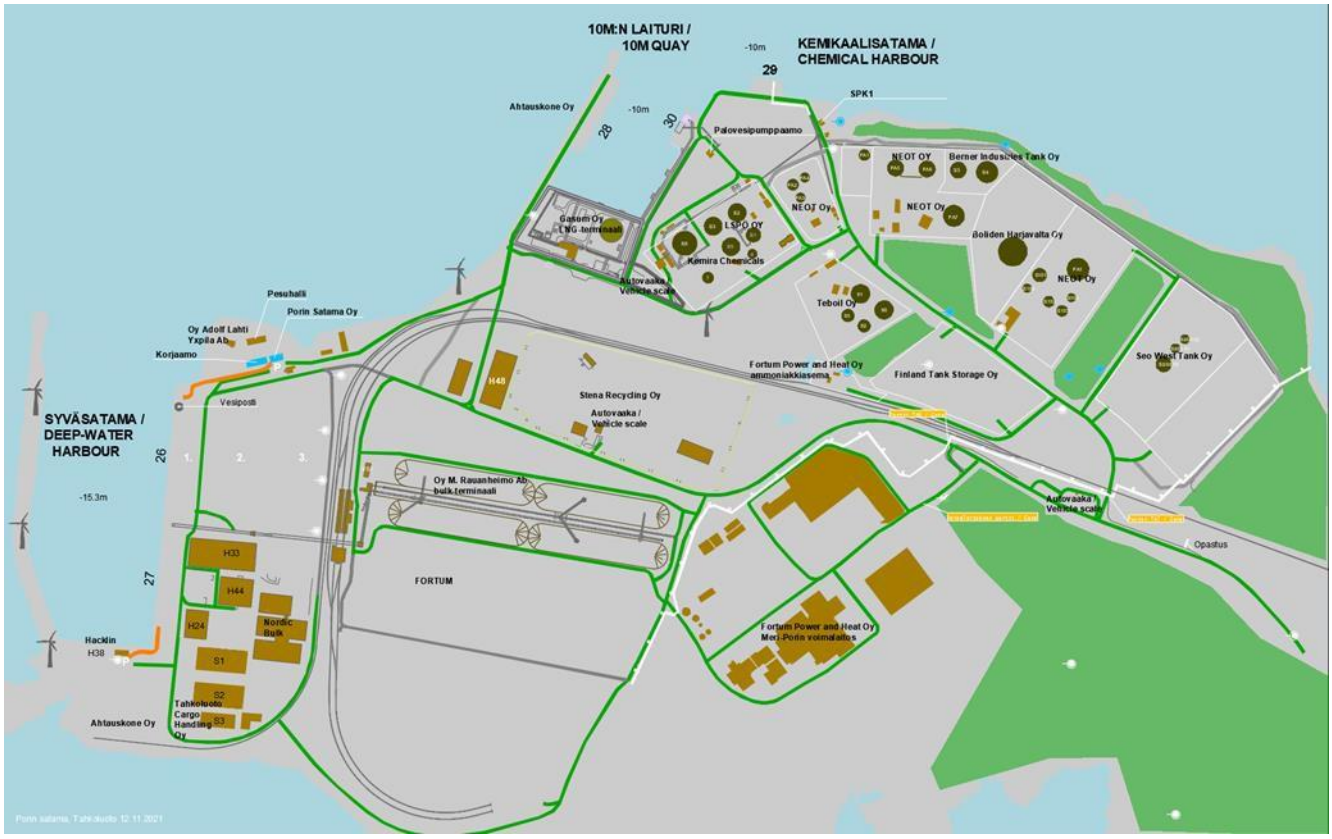
The Code of Conduct applies to all operators, operators and vessels in a chemical port, regardless of whether the vessel is empty or partially or fully loaded or approaching or leaving the port.

In addition to port regulations and operating instructions, all operations must comply with national laws, decrees and guidelines. In addition, the Port of Pori Ltd.'s safety guide and other port instructions, which can be found at www.portofpori.fi.

2.1 Moving and working in the Chemical Port area

There is a speed limit of 30 km/h in the port area and the current traffic rules are followed in the area. In quay areas, the speed limit is 10 km/h. When moving and working in the port area, wear visible protective clothing in accordance with EN ISO 20471:2013. In addition, a protective cap complying with at least standard EN 812 (however, a safety helmet (EN397) is recommended) and at least protective footwear complying with standard SFS-EN ISO 20346 must be worn outdoors.

2.2 Map of the chemical harbour



2.3 Responsibilities

The terminal operators of the chemical port are each responsible for the equipment they own in the quay and closely related areas, as well as for all equipment and functions in their own or leased areas.

Port of Porin Oy is responsible for the maintenance of the Port's fire protection equipment (water/foam cannons, fire water pumping station, fire water lines, fire extinguishers located on quays and absorbents). The locations of rescue and firefighting equipment are marked on the maps at the end of this manual .

2.4 Chemical and oil quay protection zones

A tanker moored to quays is always surrounded by a protection zone that extends from the vessel to a distance of at least 25 metres in accordance with the SFS 3355 standard. No other activity, motor vehicle or waterborne traffic shall be permitted in this protection zone during loading/unloading or comparable operations.

Other operations comparable to loading/unloading include bunkering the vessel, cleaning tanks, making gas free and other land-side operations on quays, such as cleaning lines.

On platform 29, a red traffic light indicates that the vessel is in operation. When the red light is on, access to the pier is forbidden, except for the above-mentioned activities.

If activities other than vessel operations are detected in the protection zone, they must be immediately reported to port control at +358 (0)447012623 or VFH channel 12 and loading / unloading operations must be suspended.

2.5 Smoking, making open flames and sparking devices

Smoking and making open fires are prohibited in the chemical harbour area. When operating in EX zones, all tools and equipment must comply with the EX-status class

2.6 Work and hot work permit

Work, hot work and EX permits for work carried out in the public areas, quay and EX areas of the chemical harbor (APPENDIX 1) must be applied for from the operation supervisor of the chemical harbor +358 (0)44 701 2622. In the operators' areas, work, hot work and EX permits are applied for by the company in question.

When working in a temporary hot workplace, the hot worker must have a valid hot work card acceptable in Finland. More information about the hot work card can be found on the website of the Finnish National Rescue Association www.spek.fi. The deep-water harbor maintenance hall has a permanent hot workplace.

2.7 Electrical and communication equipment

Electrical and communication equipment used in areas classified as EX must comply with the Atex Equipment Directive and the SFS 3355 standard. (Atex Equipment and Conditions Directive, Directive 94/9EC of the European Parliament and of the Council). Further information on the safety of potentially explosive atmospheres Finnish Safety and Chemicals Agency TUKES www.tukes.fi

2.8 Notification of substances stored in tanks in the port area

The terminal operator must submit a safety data sheet for all chemicals and oil products handled to

the port operator and the local rescue department before receiving the goods.

Advance notification of incoming consignments classified as dangerous must be delivered to the port operator at least 24 hours before the arrival of the consignment in the port area. Notification of vessel calls and dangerous cargo must be submitted to the Portnet system www.portnet.fi. In addition, the advance notification of dangerous goods must be submitted to Port of Pori Ltd.'s advance notification form for dangerous goods www.portofpori.fi

3 Piers

The chemical port has its own berths for petrochemical and chemical products. Appendix 2 includes platform information and Mooring Plan.

3.1 Pier 29

Nestebulk dock		
STEM	WHOLE	PRODUCT
LV001	DN250	DI
LV002	DN300	BIT/POR
–hose	DN250	BIT/POR
LV003	DN300	BE
HOSE (003-POK)	DN300	POK

3.1.1 Functions

LP29 related devices and systems:

- Sound alerts, speakers
- Light alarms red, yellow
- Traffic light
- E-stop valves
- Stormwater system oil detection and blocking valve
- Flammable gas indication and alarm
- Fire water cannons and firewater valves
- Stem drainage pumps
- Production line and operator to choose

The alarm system is described in more detail in the LP29 Nestebulk quay Automation performance report.

3.1.2 Fire alarm

The maintenance level of the pier and the pool level have fire alarm buttons. The control room and equipment area also have fire alarm buttons, and the facilities are additionally protected by smoke detectors. The fire alarm device is located at the pumping station. Triggering a fire alarm from the quay area performs an emergency stop function.

3.1.3 Emergency stop

Emergency stop pushbuttons can be found on the pool level and treatment platform. In addition,

the emergency stop button at the end of the cable is intended to be placed on the edge of the ship during operation. Pressing the emergency stop button performs the emergency stop function, i.e. light and sound alarm, closing the emergency shut-off valve during loading and sending an alarm text message to selected numbers.

3.1.4 Leakage basin

The leak pool collects possible leaks and rainwater during operation. Valve HQV031 discharges rainwater from the pool into the stormwater system of the quay area, valve HQV032 directs water or leaks from the pool to the oil separator. Under normal circumstances, valve HQV031 is OPEN and valve HQV032 is CLOSED. When loading or unloading or when an oil sensor detects oil in a well, automation controls valve HQV031 closed and valve HQV032 OPEN. Well level sensors alert you to high surfaces and high sludge surfaces.

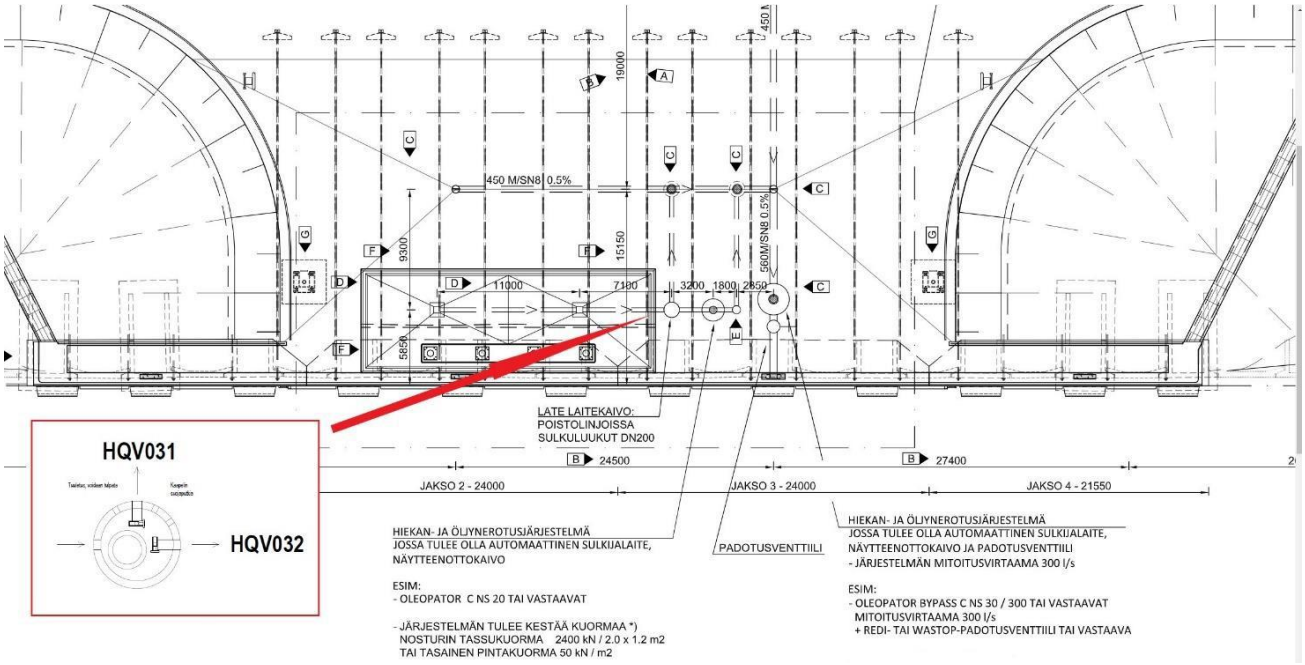


Figure 1 LP29 oil separation system

3.1.5 Emergency shut-off valves

Emergency shut-off valves are used from ship loading. In shipbuilding, the emergency shut-off valves are closed. In the event of an emergency stop, the valve is closed with a delay of 5s. The emergency shut-off valve related to the loading of the ship is opened by selecting loading as the operating mode (see 3.11), the valves are fail-safe, the emergency stop function closes the valves. Valve position information is displayed in the control room program.

Emergency shut-off valves:

- HV001 DI Diesel Emergency Stop Valve, Loading Arm 1
- HV002 BIT Bitumen E-stop valve, loading arm 2
- HV003 BE Petrol 300 Emergency stop valve, loading arm 3
- HV012 BIT Bitumen Emergency Stop Valve, Bitumen Hose Loading
- HV014 POK Light Fuel Oil Emergency Stop Valve, POK

3.1.6 Effects of thermal radiation

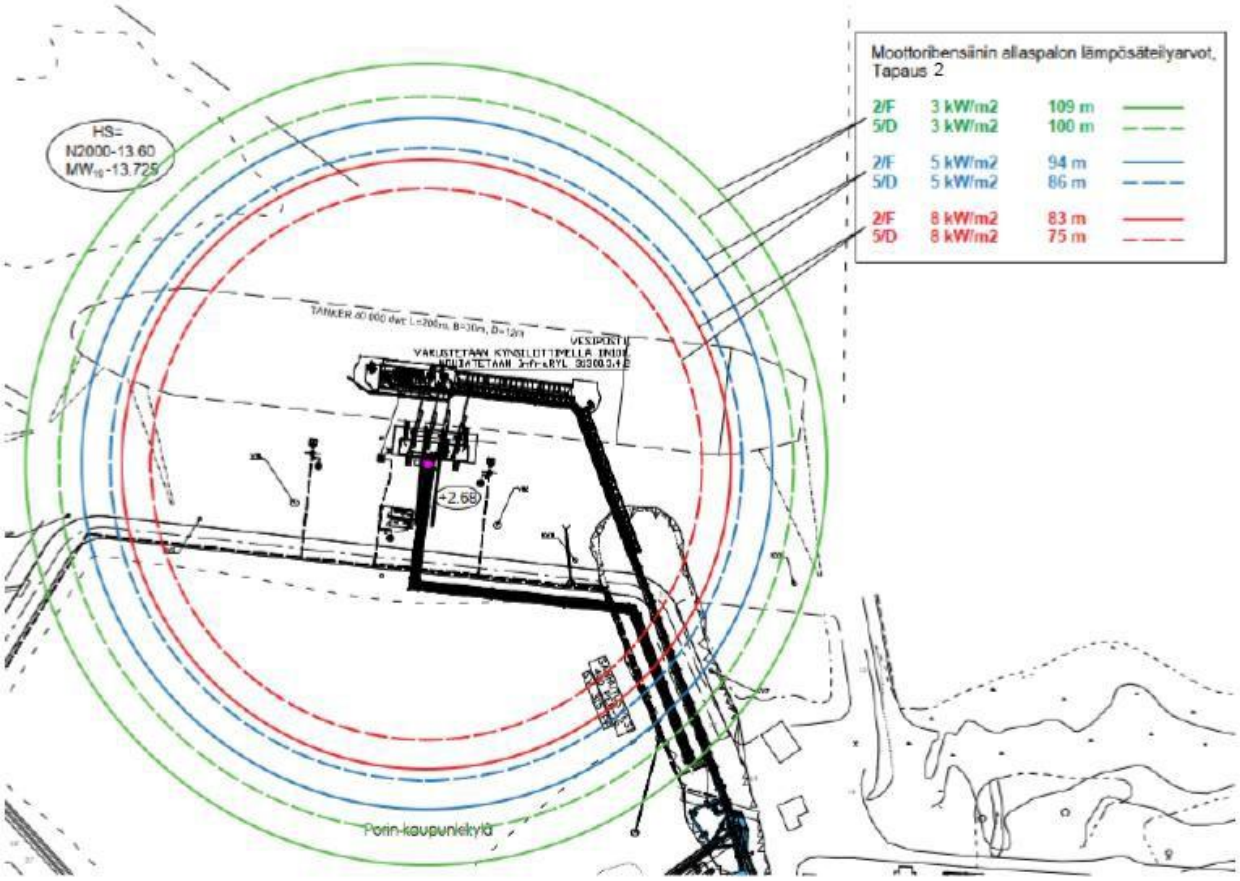
Two cases were selected for consequence modelling based on the HAZID risk assessment

conducted on 16.-17.11.2021. In the risk analysis, it was agreed that the modelled cases would be made for motor gasoline (95E10, 98E5). Motor gasoline flows through the pipeline from 1000 to 1200 m3/h at an operating pressure of 4 bar(g).
The operating temperature corresponds to the environmental/sea water temperature, which is approximately 10 ºC. The selected modeling cases are:

- Motor gasoline pool fire
- 1 mm flange leak in motor gasoline piping

Based on the results of accident consequence modelling, it can be concluded that thermal radiation values can rise dangerously high in fire situations caused by pipe bursts and flange leaks. The areas of influence of the critical thermal radiation values under consideration are also several tens of meters in both modelling cases.

Lämpösäteilyn maksimivaikutusalueet layout pohjalla on esitetty kuvassa 7.



Kuva 7. Moottoribensiiniputkiston 1 mm laippavuodon seurauksena syntyvän suihkupalon aiheuttaman lämpösäteilyn maksimietäisyydet tuulen suunnasta riippumatta. Moottoribensiinin virtaama putkistossa 1000–1200 m^3/h, paine 4 bar(g), sääolosuhteet 2/F ja 5/D, lämpötila 10 ºC, vuotokorkeus 5 m. Tarkastelukorkeus 1,5 m.

The LP29 control room building is protected by sprinkler nozzles connected to the fire water system.

3.2 Pier 30

Chemical/LNG pier			
STEM	WHOLE	PRODUCT	CAPACITY
PL-1201	12" LIQUID 8" GAS	LNG	1500 m3/h
PL-1202	8" LIQUID 6" GAS	LNG	1000 m3/h
HOSE	WHOLE	PRODUCT	
1	8”	Lye/ Sodium chlorate	
2	8”	Sulphuric acid	
3	8”	Diesel (spare)	
4	8”	Petrol (spare)	
5	8”	BIT/POR	

4 Arrival of the vessel at the chemical port, berth

Vessels may not moor at the quay, leave the quay or move in the port area without the permission of the port operator. The arrival, mooring and precautions for the vessel's stay in port are defined in the port regulations. Section 5.1 Requirements for pilots specifically mention restrictions on the passage of LNG vessels, as well as restrictions on the passage of other vessels while LNG operations are in progress.

To ensure safe movement, the vessel is obliged to use tug assistance to the extent deemed necessary by the master of the vessel. The hatches or valves of a vessel carrying dangerous cargo must not be opened during tug assistance. For safety reasons, the port operator may order the tugboat(s) to be used by the vessel.

The vessel must stop unloading/loading and empty the unloading/loading arms if the 10-minute average wind exceeds 19 m/s or the sea becomes too rough for safe operation. Before unloading/loading begins, the wind conditions throughout the operation should be investigated and consideration should be given to whether the operation can be carried out safely (e.g. Unloading). www.fmi.fi).

The minimum operating temperature is -27°C and if it threatens to fall below zero, operations are suspended, the loading arm is emptied and fixed in its storage position.

The main engine of the vessel must always be operational. If the main engine of the vessel is not ready for use (e.g. repair) while at berth, the vessel must use a "stand by" tug.



4.1 Ship Safety Watch

The master and officers of the vessel are obliged to familiarize themselves with the safety arrangements of the quay area (APPENDIX 3), rescue and firefighting equipment and the Port of Pori's safety guide "Safety First", which can be found at www.portofpori.fi

The ship must also have a safety guard on board, whose duties include monitoring the ship's mooring ropes and disembarkation bridge, ensuring that there is no chemical/oil spill on board, and reporting all possible dangerous situations. The safety guard must also be aware of the Port's operating instructions and the rescue and fire extinguishing equipment in the quay area.

4.2 Cargo handling

The loading and unloading of the vessel shall be carried out in cooperation between the operator and the master. The operator is responsible for all operations and personnel related to land loading or unloading. The operator must have written instructions on its operations.

There shall also be reliable communication between the vessel and the operator by telephone, portable VHF/UHF or walkie-talkie. In addition to the primary communication system, a backup system must be agreed. Before loading or unloading begins, the operator and master must go through the loading plan and the Ship/Shore Safety Check List.

The ship shall ensure that all doors, windows, gates and similar openings leading from the main cargo deck to the crew quarters are closed during cargo handling and similar operations. All rainwater and similar openings leading from the deck of the vessel to the sea must be closed before cargo handling begins.

Before starting loading or unloading, the operator must ensure that the drainage basins of the quay are empty, and the shut-off valves are closed. At the chemical quay, it must also be ensured that the collection wells are empty and the shut-off valves are closed (APPENDIX 4). The shut-off valves shall be kept closed throughout the ship's berth and during operations comparable to loading and unloading.

Loose IBC containers related to cargo handling, etc. The tanks must be removed from the quay area immediately after the ship has been operated.

4.3 Handling chemical hoses

When handling chemical hoses, separate instructions must be followed (APPENDIX 5).

4.4 Pipelines

The pipelines leading to the quay and storage are emptied after use, unless there are operational and justifiable reasons to keep the line temporarily full. Information on full pipes in the port area shall be submitted to the port.

Emptying takes place at product-specific piping drainage pumping stations, or with a suction truck in the drain joint. After draining the piping, make sure that the lines are empty.

4.5 Plumbing guard

During loading or unloading, the operator must have a shore piping guard.

4.6 Sampling

Sampling shall be carried out in accordance with the current edition of the International Safety Guide for Oil Tankers & Terminals (ISGOTT). The ATEX Equipment and Conditions Directive (94/9EC) must also be considered in sampling.

4.7 Cargo tank cleaning procedures

As a rule, washing the ship's cargo tanks is prohibited while the vessel is at berth. The washing and operations referred to in Annex II of the MARPOL Convention shall be subject to the consent of the port operator, tel. +358 (0)447012622.

4.8 Measures to prevent contamination of land and water

Loading and unloading operations, as well as similar other measures, must be carried out so that no discharges are caused to the sea, air or land. In the event of an accident, the Port of Pori Ltd's safety guide "Safety First" (www.portofpori.fi) is followed

4.9 International agreements to be respected:

- chemicals and petroleum products in bulk under the corresponding BCH code applicable to old ships of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in bulk (IBC)
- Regulations relating to liquid fuels, regulations for the prevention of pollution of waters from ships Marpol 73/78

- Where applicable, the current International Safety Guide for Oil Tankers and Terminals (ISGOTT)
- IGF-Code –IMO International Code of Safety for Gas-Fulled Ships and other low-flashpoint fuels.

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

5 LNG operation

LNG vessel traffic complies with Port of Pori Ltd.'s port regulations, these guidelines and national regulations. In addition, there are operators following their own guidelines. In addition to the instructions mentioned earlier in this guide, LNG operations and handling parties must comply with the following guidelines.

5.1 Requirements for pilots

Upon arrival and departure, LNG carriers shall use one ASD tug with a minimum pile pull (BP) of at least 25 tons. During ice time, a conventional tug can replace an ASD tug. To ensure safe movement, an additional tug shall be used at the discretion of the master. Pilotage is not carried out if the 10-minute average wind exceeds 14 m/s with wind direction 210° – 360° or the wave height exceeds 1.0 meters.

Vessels operating to berths 28 and 29 shall use tugs while the LNG vessel is operating.

LNG vessels arriving at the chemical quay for the first time must operate in daylight, and a meeting must be arranged before arrival to go through the details and practices of entering the port.

5.2 LNG bunkering guidelines

- The bunkering vessel and tanker truck must be authorised by Port of Pori Ltd. (see criteria for bunkering vessels and tankers)
- The receiving ship shall comply with the interim IMO MSC 285(86) guideline.
- The terminal must have a safety management system and routines approved by Port of Pori Ltd in order to allow bunkering in the chemical port (see the criteria for the terminal).
- All bunkering must be reported to port control at +358 (0)447012623.

5.2.1 Criteria for bunkering ship and tanker truck

The bunkering vessel and tanker truck must:

- be constructed in accordance with the IGC Code.
- be audited according to the Green Bunkering concept.
- contains evidence of appropriate training and accreditation based on the interim IMO MSC 285(86) guideline.

5.2.2 Criteria for receiving vessel

The receiving vessel must fully comply with IMO MSC 285(86) guidelines and the IGF code when it enters into force. The ship must also follow a safe bunkering procedure, which is carried out in

accordance with the confirmed ISM manual on board.

5.2.3 Terminal criteria

The terminal shall have procedures for safe bunkering, which shall be implemented in accordance with an approved safety manual

5.3 Hazardous areas and safety zone

Before starting LNG fuel transfer operations, a separate safety zone must be established around the fuel transfer station in addition to hazardous areas.

A safety zone is an area around a fuel transfer station or services to control ignition sources and ensure that only necessary personnel and activities are allowed in an area that may be exposed to flammable gas or other damage to LNG or natural gas fuel transport in the event of accidental release.

The safety zone should never be less than the distance between the hazardous area and the receiving vessel, bunker barge, terminal building or truck.

Safety zone distances in the Port of Pori:

Type of vessel	At sea/red	Pier	Terminal
LNG/LPG/tanker	25 meters	25 meters	25 meters
Tanker/bulk ship	25 meters	15 meters	15 meters
Sterngate ship	25 meters	25 meters	15 meters
Passenger ships	25 meters	25 meters	25 meters

5.4 LNG fuel bunkering from tanker truck

The transfer of fuel from an LNG tanker to a vessel is comparable to an operation between a fuel transfer vessel and the receiving ship, and therefore the same guidelines apply, and this checklist must be completed.

In order to operate an LNG fuel tanker truck at the Port of Pori, the driver of the vehicle must have an approved certificate of ADR training and demonstrate their knowledge of the terminal's safety manual regarding LNG fuel transfer.

5.5 Bunkering measures and requirements

The maximum pressure and pumping speed of the fuel transfer are based on the reception capacity of the terminal, LNG tanker and receiving vessel. These figures should be filled in the checklist for safe fuel transfer.

If an emergency occurs in the terminal that does not affect the operation of the vessel, the terminal notifies the vessel, bunkering vessel and/or LNG tanker by VHF radio or other agreed means of communication.

If an emergency occurs in a terminal that affects the operation of a vessel, bunker vessel or LNG tanker, decisions on disembarkation from the vessel or quay fall within the competence of the Port.

It is forbidden to moor two LNG fuel transfer vessels next to the receiving vessel.

LNG bunkering personnel and the receiving vessel to be loaded should be aware of the general operating regulations of each terminal.

All lighting and cables in the safety zone of the terminal LNG vessel or truck should be turned off so that the lights are completely ineffective. This does not apply to explosion-proof equipment.

It is not allowed to use equipment such as aft gate ramps, landing bridges, hydraulic/compressed air tools/equipment within the safety zone that may cause spark or heat in case of malfunction or during movement.

Potential passengers should be informed of ongoing LNG transfer operations with warning boards (no smoking, no lighting on, etc.) and access restrictions to weather decks facing LNG operations.

5.6 Checklist for safe LNG fuel transfer

The checklist for safe LNG fuel transfer is used step by step to secure LNG fuel transfer operations at the Port of Pori. A ship-specific checklist for safe LNG fuel transfer must be completed so that all risks related to the handling of cargo and passengers of the receiving vessel have been considered and assessed.

5.7 Distribution of responsibilities

5.7.1 Ships

When a ship is receiving fuel from a barge or tanker, responsibility for the safety of the operation is shared between the receiving vessel, the fuel vessel and the tanker driver.

All parties are responsible for stopping operations in order to avoid incidents and accidents, regardless of the cause of the action.

The captain of a ship is responsible for all operations on board the ship that it manages and controls. The captain of a bunker vessel is responsible for all operations in the bunker vessel that it manages and controls. The tanker driver is responsible for all operations controlled by it in the truck.

5.7.2 Terminal

The terminal must have operating instructions for safe fuel transfer and cargo operations. In the event of an LNG emergency, the terminal representative is responsible for creating a comprehensive emergency plan.

The terminal representative ensures that no one enters the designated and agreed safety zone without permission in the quay area. The terminal representative must also ensure that the LNG tanker truck is parked correctly and is not hindered by any means of transport. The LNG tanker truck must be parked so that immediate departure is possible without separate movements.

The terminal representative must check that all safety precautions have been taken in accordance with the terminal regulations.

Contact details:

Port of Pori Ltd

Chemical Port

FIPOR-0003

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GENERAL EMERGENCY

NUMBER 112