

Port of Raah, Lapaluoto **Bunkering of LNG, general instructions**

The Port of Raah consists of two harbor areas, the SSAB steel factory harbor area and the general traffic harbor area of Lapaluoto. This instruction concerns the Lapaluoto harbor area.

The bunkering of LNG means fueling liquefied natural gas from a tank truck into the fuel tank of a ship.

Natural gas is an extremely flammable gas and during fueling the 5-meter radius of the fueling area is classified as an area with a danger of explosion.

For the purpose of transportation, LNG is a natural gas cooled into a liquid with a temperature of approximately -163 °C. The volume of the gas is about 600 times greater than that of liquid.

The gas is colorless, but in the event of a leak, the condensed water steam forms a steam cloud. The steam cloud can form around the tanking equipment even when there is no leak.

A leak is identified by the gas detectors of the tank truck and the vessel, which trigger an automatic emergency stop.

Trained personnel who are aware of the ignition and frost injury dangers are allowed to handle LNG. Persons taking part in the handling of LNG use gas and oxygen meters.



Operation description

The shipping company orders bunkering from a transport company. The transport coordinator or the driver of the tank truck of the transport company will check the arrival of the vessel from the shipping agent of SSAB when necessary.

The Port of Raahen Ltd must be informed about any upcoming bunkering by email, using the address port@raahe.fi, by 12PM of the previous business day by the very latest. The notification must contain:

- The name of the ship and contact information
- The planned berth of the ship
- The estimated arrival time of the LNG transportation vehicles
- The license numbers of the vehicles
- The name of the transport company
- The mobile phone number of the driver

The harbor office will inform the site management of the harbor operator about the upcoming bunkering. Bunkering is for the time being possible at the east end of berth LL3.

The docker supervisor will give permission for bunkering and ensure that the power in the bollards at the safety area for bunkering at berth LL3 are switched off.

The road to the berth runs through the Lapaluoto gate, via Lapaluodontie and Satamakentäntie.

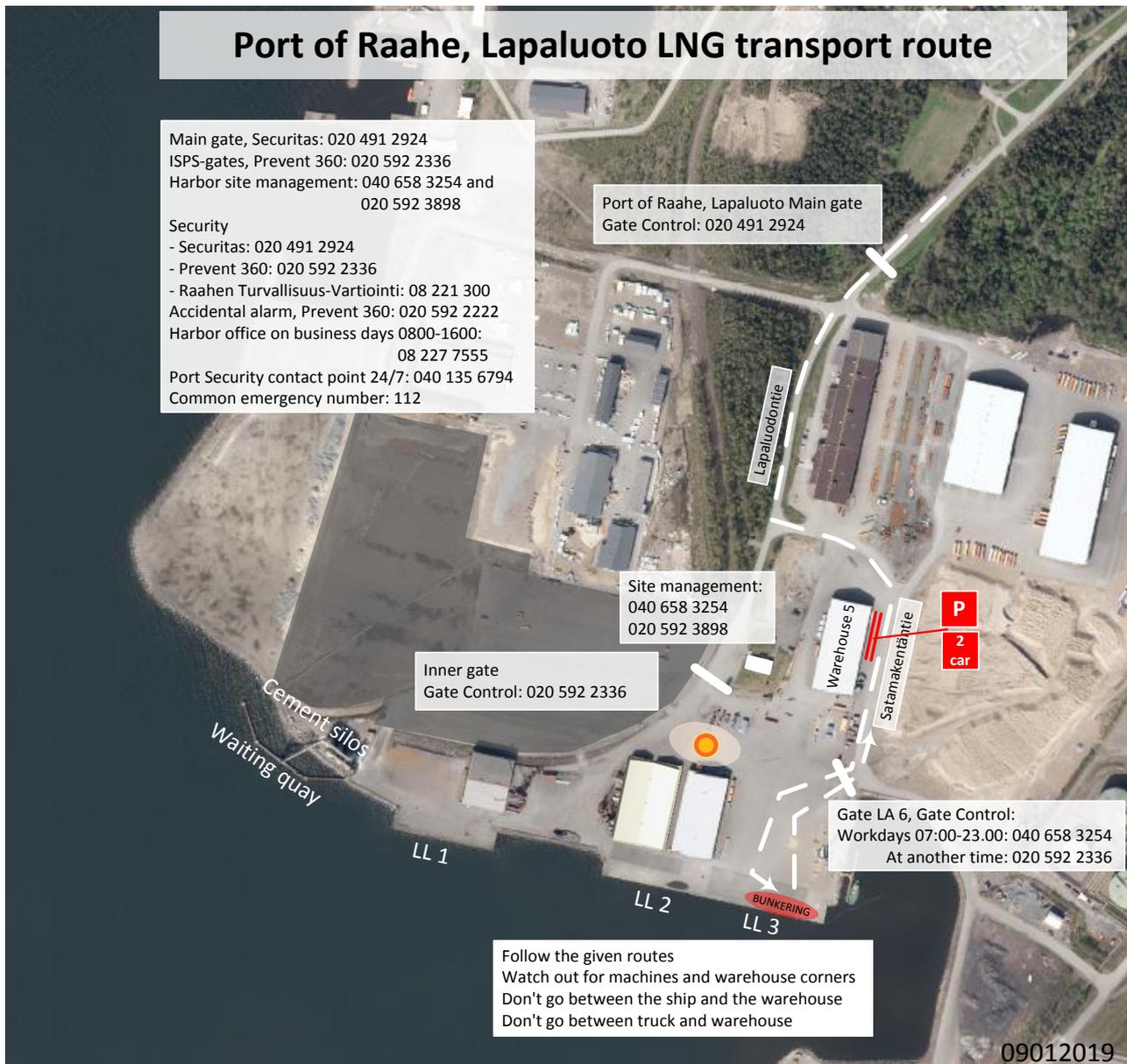
The Lapaluoto gate has a register plate identification system, which allows permitted vehicles through the gate. In the case of an error or exception, there are directions at the gate.

To get to the berth, go through gate LA 6, which you can ask to be opened on business days between 7AM and 11PM by the docker supervisor (040 658 3254) and outside of those hours by the SSAB gate control (020 592 2336).

There can be 1 – 2 tank trucks in the harbor area at the same time and 1 – 2 tank trucks at the waiting area. The crew of the ship and the driver of the tank truck carry out the necessary safety procedures at the berth.

A ship can be bunkered either from one car at a time or from two trucks through a manifold.

The amount that is bunkered is approximately 4 truckloads. Pumping one load takes approximately an hour.



Port of Raabe, Lapaluoto LNG transport route

Main gate, Securitas: 020 491 2924
 ISPS-gates, Prevent 360: 020 592 2336
 Harbor site management: 040 658 3254 and
 020 592 3898

Security
 - Securitas: 020 491 2924
 - Prevent 360: 020 592 2336
 - Raahen Turvallisuus-Vartiointi: 08 221 300
 Accidental alarm, Prevent 360: 020 592 2222
 Harbor office on business days 0800-1600:
 08 227 7555
 Port Security contact point 24/7: 040 135 6794
 Common emergency number: 112

Port of Raabe, Lapaluoto Main gate
 Gate Control: 020 491 2924

Site management:
 040 658 3254
 020 592 3898

Inner gate
 Gate Control: 020 592 2336

Gate LA 6, Gate Control:
 Workdays 07:00-23:00: 040 658 3254
 At another time: 020 592 2336

Follow the given routes
 Watch out for machines and warehouse corners
 Don't go between the ship and the warehouse
 Don't go between truck and warehouse

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Safety protocols

The Port of Raabe Ltd must be informed of an upcoming bunkering by email using the address port@raahe.fi by 12PM of the previous business day at the latest.

The road LNG tank trucks take to berth number 3 goes through the Lapaluoto gate. The waiting area **P** is next to the harbor storage 5 before the berth area.

On business days between 7AM and 11PM, the driver of the tank truck must ask for gate LA 6 to be opened by the docker supervisor (040 658 3254) and outside of those times by the SSAB gate control (020 592 2336) before arriving to the berth area.

The docker supervisor will give permission for bunkering and ensure in advance that the power in the bollards at the safety area for bunkering at berth LL3 are switched off from the Hinaajalaituri switchboard.



Image: The switchboard of Hinaajalaituri. When light is ON, LL3 quay pollard power is OFF.

When bunkering from one vehicle, the safety area is 25 meters around the grounded bollard, and 30 meters when bunkering from two vehicles.

The surface water wells in the safety area must be covered or a blind cover must be used.

The crew of the ship will seclude the safety area for the duration of bunkering and provide closure tape, a rainwater drain shut-off mat and extinguishers. When necessary, the tank truck driver will assist. Other traffic in the area is prohibited.

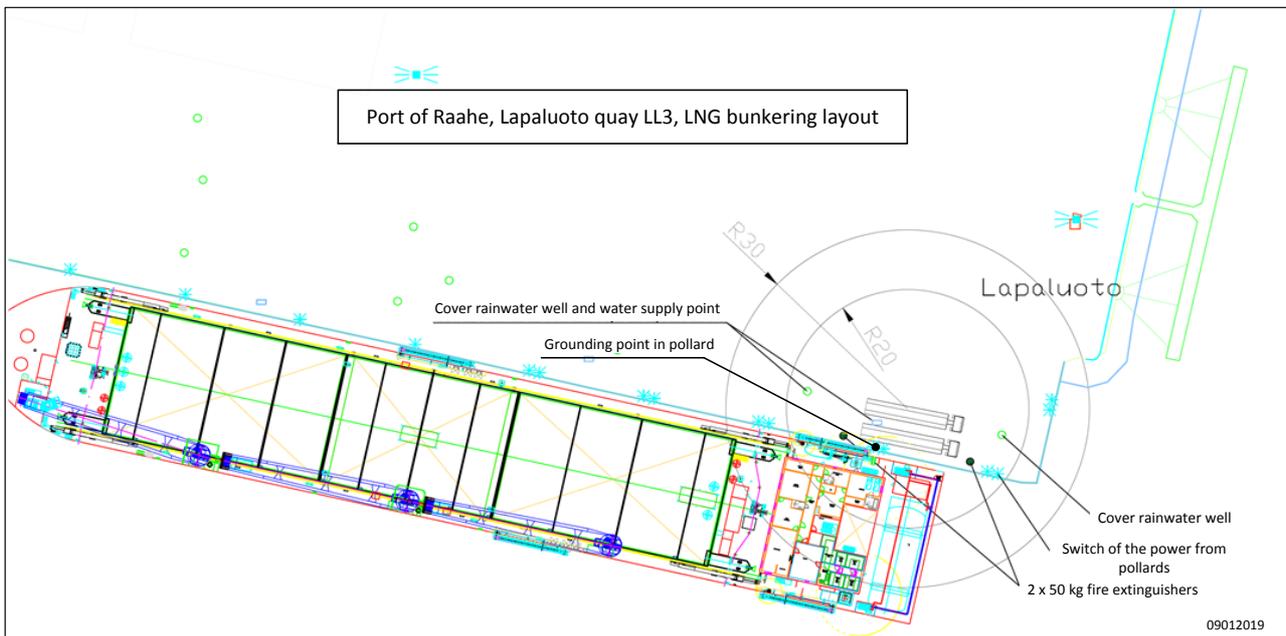
Those taking part in bunkering must monitor traffic in the proximity of the bunkering area. The harbor management will also monitor traffic in the harbor area on business days between 7AM and 11PM.

The driver of the tank truck and the captain of the ship are responsible for the safe bunkering of LNG. Before starting bunkering, they will go over the safety checklist, which takes into account the weather and other conditions at the berth.

Handling cargo outside of the safety area is allowed, but flammable substances must not be inside the safety area. Handling of cargo must be suspended if flammable substances enter the bunkering area.

The bunkering of LNG is not allowed at the same time as benzene is being loaded at the chemical berth – the shipping company can anticipate this by following the ship traffic list upheld by the shipping agent.

If the safety area is required for the handling of cargo, the port planning will take care of the timetable for the use of the harbor and communication between different parties.



Protocol in exceptional situations

In the event of a leak, the emergency stop system of the ship and the tank truck will stop pumping automatically.

After a small leak, bunkering can be continued once the reason for the leak has been discovered and fixed and the leak tests of the system have been carried out.

In the event of a big leak all vehicles at the bunkering berth must be turned off and everyone must exit upwind a sufficient distance away from the leak.

The tank truck driver or whoever detects the leak is obligated to notify the SSAB emergency number (020 592 2222) and the docker supervisor (040 658 3254). The alarm must be made outside of the accident site or for example inside a ship.

The harbor management will inform those in the harbor area of the leak and take care of quarantining the area until the SSAB factory fire department arrives and takes over rescue and prevention measures. Harbor personnel must not take part in initial prevention measures.

During normal bunkering, the condensing water steam and the steam cloud caused by a big leak differ from each other significantly.



Contact information Lapaluoto harbor area

Main gate, Securitas: 020 491 2924

ISPS-gates, SSAB gate control Prevent 360: 020 592 2336

Harbor management, Hooli Stevedoring Oy: 040 658 3254 ja 020 592 3898

Guards:

– Securitas: 020 491 2924

– Prevent 360: 020 592 2336

– Raahen Turvallisuus-Vartiointi: 08 221 300

Accidental alarm, Prevent 360: 020 592 2222

The harbor office on business days 8AM – 4PM:

– Phone: 08 227 7555

– E-mail: port@raahe.fi

Harbor security contact point 24/7: 040 135 6794

SSAB emergency number: 020 592 2222

Common emergency number: 112