LNG truck approval process and vehicle compliance requirements

Hamina LNG Oy
2696139-5

Satamantie 4 PL26
49460 Hamina

LNG Terminal
Port of HaminaKotka

Haminan liquid terminal
Terminaaliranta 5
49460 Hamina

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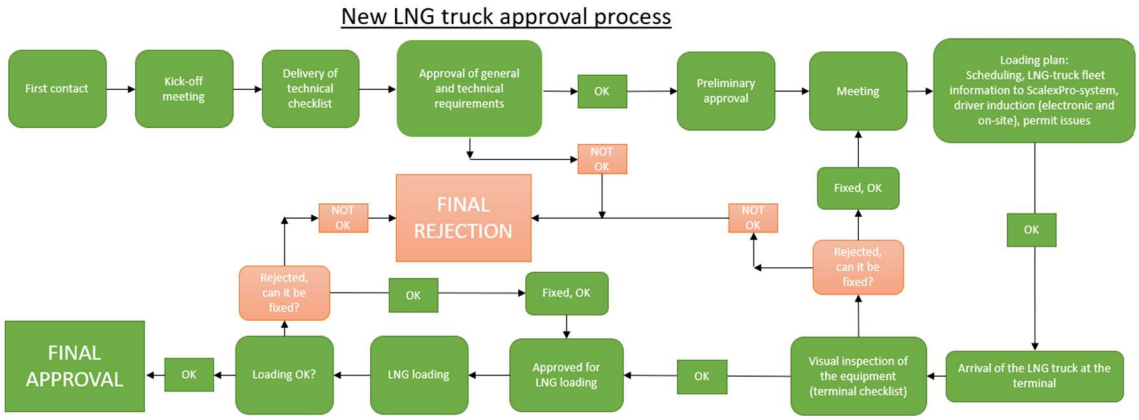
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1. LNG truck approval process

This approval procedure with its attachments primarily focuses on the statutory safety requirements, as well as ensuring the compatibility of the transport equipment with the loading equipment of Hamina LNG Oy's LNG terminal. Vehicle combinations using the loading service must be approved in advance by the Terminal Operator. This document and its attachments describe the process and operating methods of the transport equipment approval procedure. A fee according to the valid price list is charged for the approval procedure of an LNG Truck. The approval procedure is vehicle-specific.

Before LNG Trucks can be loaded with liquefied natural gas at the Hamina LNG terminal, the entire transport equipment (vehicle combination and tanks) must be approved by the Terminal Operator in order to obtain a loading permit. The Terminal Operator, i.e. Hamina LNG Oy, submits this document with its attachments to the transport company, which, after familiarization with the material, is returned to Hamina LNG Oy by e-mail to the address: valvomo@haminalng.fi. The approval process is described in the image below.



First contact: User's logistics company wishing to load LNG trucks contacts the terminal operator by e-mail or telephone. The date for a possible kick-off meeting is set.
Kick-off meeting: A kick-off meeting is organized if necessary (Teams). In the kick-off meeting, operating instructions and general practices are specified.
Delivery of technical checklist: The technical checklist for LNG trucks is delivered to the logistics company to be filled out.
Approval of general and technical requirements: The technical checklist has been submitted to the terminal operator, filled in and with the requested attachments. The terminal operator accepts/rejects the submitted documents
Preliminary approval: The logistics company's equipment (LNG truck) has been preliminarily approved to arrive at the terminal.
Meeting: A meeting is organized if necessary. At the meeting, the logistics company presents its wishes for scheduling, an electronic induction for the driver is arranged at the terminal and the permit issues are confirmed (minimum requirements)
Loading plan: In the loading plan, a loading event is scheduled, the information of the LNG truck is stored in the ScalexPro system, terminal induction and, if necessary, loading training are arranged for the driver.
Arrival of the LNG truck at the terminal: LNG truck arrives at the terminal to perform a preliminary loading event.
Visual inspection of the equipment: LNG truck and trailer are inspected visually by terminal personnel, and it is also confirmed that the necessary equipment is found.
Approved for LNG loading: The inspecting party at the terminal approves the LNG truck for loading.
LNG loading: An LNG loading is performed at the terminal's truck loading delivery point.
Loading OK?: If the loading event is OK, final approval can be carried out. If critical problems occur during loading, the approval process will be interrupted.
FINAL APPROVAL: The loading event has been carried out with approval and the LNG truck in question is given final approval to carry out loading events at the terminal. The permit is valid for 5 years.
FINAL REJECTION: The LNG truck does not meet certain requirements, and for the reasons herewith, it is not allowed to carry out loading events.

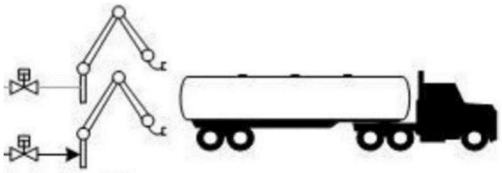
Hamina LNG Oy complies with the currently valid Terminal Rules approved by the Energy Authority. The Terminal Rules of Hamina LNG Oy's LNG terminal can be found at https://haminalng.fi/. These Terminal Rules are followed when the Terminal Operator sells terminal services to Terminal Users.

2. LNG truck loading system

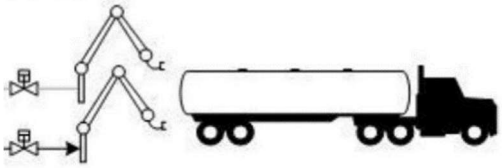
The Hamina LNG terminal has two truck loading bays (Z491A/B), both of which are equipped with weighing scales and flow measurements. The weighing capacity of the scale system is 100 ton/loading bay (50 ton + 50 ton). A maximum of two LNG trucks can be loaded at the same time. Loading and gas return arms, two scales, and a control and monitoring system for the loading event can be found at the loading bays. The specific loading bay to be used

is indicated to the driver by traffic lights. An emergency shower and eyewash supplies can also be found near the loading area. The staff of Hamina LNG Oy monitors the loading event from the central control room and, if necessary, assists to ensure a safe loading event.

Z491A



Z491B



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3. Contact information

Terminal	Logistics company
Port: Port of HaminaKotka Tel: +358 20 790 8800 Address: Satamantie 4, 49460 HAMINA E-mail: safety@haminakotka.fi **Terminal operator: Hamina LNG Oy:** 24/7 Control room tel: +358 40 772 4555 Visiting address: Terminaaliranta 5, 49460 HAMINA E-mail: valvomo@haminalng.fi **60° 51' N, 27° 16' E**	Logistics company: Tel: Address: E-mail: Logistics company contact person: Logistics company safety advisor:

4. Terminal technical information and vehicle compliance requirements

LNG line design pressure	19bar (g)
Loading operating pressure	2bar (g), max. 5bar (g)
Loading speed	Max. 75 m3/h
LNG truck combination maximum length	Max. 25m
LNG truck combination maximum weight	50+50 (ton), max. 100 (ton)
Loading arm connection	Mann-Tek 2½" DN65
Gas return connection (BOG)	Mann-Tek 2" DN50
Scale system	Tamtron Scalex

4.1 Technical checklist

This checklist must be filled out and sent via e-mail (valvomo@haminalng.fi)

Required information: Logistics company fills			
	Logistics company:		
	Logistics company license plate numbers:		
	VIN:		
	LNG tank volumes (cold):	m³	m³
	Tare weight empty (truck + trailer):	kg	kg
	Truck combination dimensions (length, width, height):		
	Loading connection and connection flange location, dimensions (" & DN):		
	LNG lines:	Loading connection:	
	Gas return lines:		
	Opening pressure of safety valves: bar(g)		
	Baffles and fill levels (trycocks): at % at % at %	Hamina LNG informs about surface monitoring. Does the vehicle use baffles Yes/No: Does the vehicle use trycock valves Yes/No:	
	The procedures for cooling and loading a warm tank must be described to Hamina LNG before starting to operate (the logistics company's own instructions). The temperature in the tank at the beginning of the loading event must be below -120 °C.		
Technical documents of the LNG truck:			
	Hamina LNG complies with:		
	• General ADR regulations (drivers' certificates and ADR vehicle inspection certificate)		
	• VAK approval certificate for vehicles (tanker trucks, cryogenic transports)		
	The LNG truck must be approved for LNG transport and meet other criteria required by the authorities.		
Approvals and materials for LNG TANKS and VEHICLES: Required from the logistics company (as an attachment)			
	• The logistics company has a safety plan that covers operations in the terminal area. • Approval certificated for tanks (tightness test and periodic inspection). The inner and outer shell of the tank must be made of stainless steel. Tanks must be type-approved for cryogenic transport (container codes R*BN, R#BN, R#CN, R#DN). • The vehicle's valid VAK/ADR inspection approval certificate • Photos of the truck, trailer and locations of the safety valves (general photos and closer photos of the loading connections) • Technical data and P&I diagrams of the truck and trailer		
Terminal checklist: Terminal operator fills			
	☐ Visual inspection of the transport equipment, e.g. loading connections and location of safety valves		
	☐ Written safety instructions can be found in the cockpit		
	☐ 2 self-standing warning signs		
	☐ Personal protective equipment in LNG transport (safety vests for each crew member, separate light, protective gloves, eye protection)		
	☐ Wheel chocks (separate chocks for trailer)		
	☐ At least two fire extinguishers		
Minimum requirements for drivers:			
	• Finnish or English language knowledge required • Terminal's digital safety site induction must be completed • ADR driving certificate		

5. Access to the terminal area

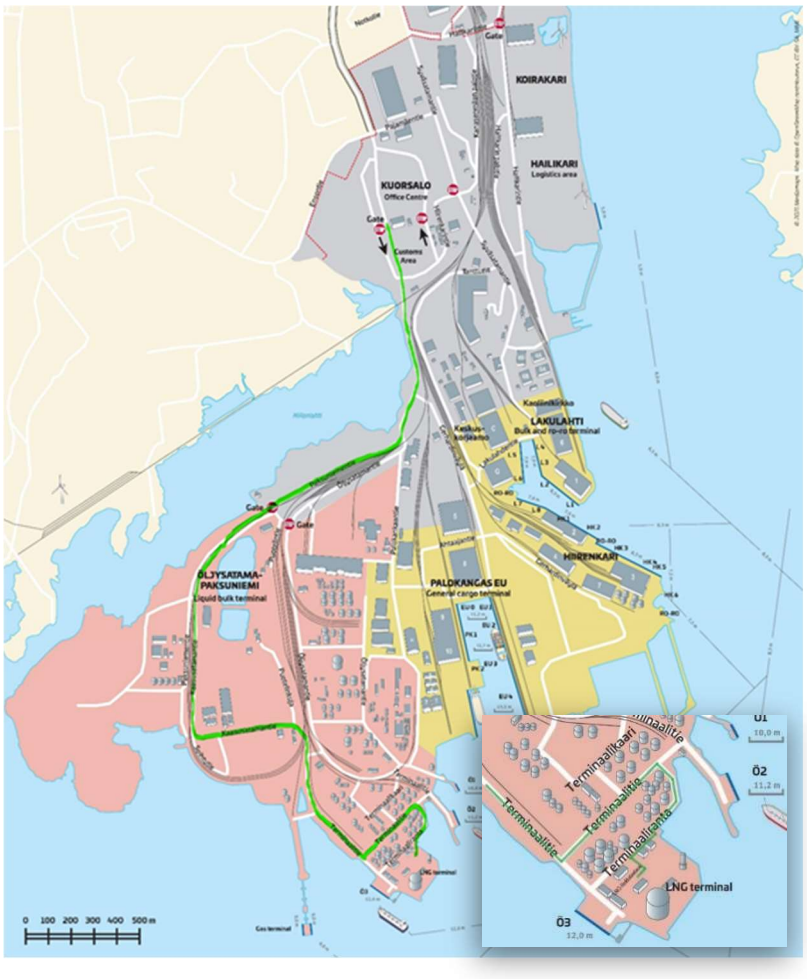
A pass issued by the Port of HaminaKotka is required to access the port. Once the pass has been issued and is valid, you can drive directly to the harbor gate, which has license plate identification.

Automatic license plate identification is successful when the license plate is straight and clean. If the license plate identification fails, the display board at the gate directs the driver to the information point of the port office center.

When moving around the port area, special caution must be observed in crossing and level crossing areas as well as in working areas. Light traffic and passenger car traffic only use separately marked public access routes.

Parking is allowed in places with P signs. The general speed limit on traffic lanes in the port area is 40 km/h and in the gate and terminal area 20 km/h.

When moving around the port area, port's instructions must be followed: www.haminakotka.com



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