



KLAIPEDA PORT INFORMATION BOOKLET FOR THE LNG CARRIERS

KLAIPEDA

DATE	PAGE	CORRECTIONS
2015-09-17	Annex No. 4	Permissible maximum vessel draft alongside the quay was adjusted
2015-09-07	Annex No. 1	Tugs' list was updated
2017-02-01	Annex No. 1; Annex No. 2; Annex No. 3; Annex No. 5; Page No. 5; Page No. 7; Page No. 8	Tug "Stumbras" was removed from tugs' list. The document name of mandatory Harbour Master order was corrected. Additional remarks were added and previous remarks were adjusted. New annex was added. Contact details were adjusted. Maximum speed and maximum allowable LNG Carrier draft at LNG Terminal were adjusted. Reference into Annex No. 5 was added.
2019-03-06	Annex No. 5; Page No. 20	Updated Annex. Updated table comments.
2019-12-10	Page No. 14	Deleted wrong sentence in chapter 2.3
2020-02-21	Page No. 6 Page No. 7 Page No. 8 Pages No. 10 & 11 Page No. 13 Page No. 18	Updated LNG terminal contacts information Updated contact list Inserted chapter No. 1.3 "LNG Carrier Limitations" Updated chapters No. 1.6 and No.1.7 Updated chapter No. 1.17 Inserted section No. 3
2020-06-22	Annex No. 2 and 3	Changed Mandatory Harbour Master order. Updated table.
	Page No. 8	Chapter No. 1.2 changed maximum vessel size.
2020-11-16	Page No. 8	Chapter No. 1.2. corrected data of maximum vessel size.
2021-01-05	Page No. 14	Updated chapter No. 2
	Page No. 8	Uptaded chapter No. 1.2
2022-01-07	Page No. 8 Page No. 9 Page No. 28	Updated chapter No. 1.3 Added Annex. No. 6
2022-03-14	Page No. 8 Page No. 22 Page No. 23 Page No. 27	Updated chapter No. 1.3 Table of tugs Updated Annex No. 2 Inserted table
2022-05-03	Page No. 8 Page No. 25	Updated chapter No. 1.2 Updated Annex No. 4
2022-05-30	Page No. 23	Updated Annex No. 3
2024-12-30	Page No. 22 Page No. 27	Updated Annex No. 1. Inserted TAK-9 and deleted TAK-7 Updated Annex No. 6. Revised gas quality requirements

Contents

INTRODUCTION.....	5
LNG TERMINAL CONTACT INFORMATION	6
EMERGENCY CONTACTS	7
1. GENERAL INFORMATION OF KLAIPEDA SEAPORT.....	8
1.1. Port Location and Description	8
1.2. LNG Carrier Arrival	8
1.3. LNG Carrier and Cargo Limitations	8
1.4. Port Security (ISPS).....	9
1.5. Port Environment.....	9
1.6. Towing.....	11
1.7. Pilots and Pilotage	11
1.8. LNG Carrier Anchoring Place	12
1.9. Ballast Discharge	12
1.10. Port Pollution	12
1.11. Flags and Signals	12
1.12. Ship Agencies	12
1.13. Port in Winter.....	13
1.14. Port Dues.....	13
1.15. Immigration and Customs.....	13
1.16. Medical Care.....	13
1.17. Local Holidays.....	13
2. NAVIGATION IN PORT	14
2.1. Entrance Channel	15
2.2. Port Gates.....	15
2.3. Inner Channel from Buoy No. 5 to Buoy No. 9.....	16
2.4. Channel Turn at Buoy No. 9	16
2.5. Inner Channel from Buoy No. 9 to Buoy No. 19.....	17
2.6. Channel Turn at Buoy No. 19	17
2.7. Smeltes Water Area	18
2.8. Recommendations for LNG Carriers.....	19
3. EMERGENCY PROCEDURES	19
3.1. Emergency situations management.....	19
3.2. Initial notification.....	19
3.3. Emergency at the Terminal	19
3.4. Emergency signals	19
3.5. Dealing with emergencies.....	20
3.5.1. Incident onboard the LNG Carrier	20

3.5.1.1.	Fire onboard the LNG Carrier	20
3.5.1.2.	LNG leaked onboard the LNG Carrier	20
3.5.1.3.	Incidents during LNG Carrier passage in Klaipeda port	20
3.5.2.	Incident at the Terminal including FSRU.....	21
3.5.2.1.	Fire	21
3.5.2.2.	LNG leakage onboard FSRU.....	21
ANNEX NO. 1	.....	22
ANNEX NO. 2	.....	23
ANNEX NO. 3	.....	24
ANNEX NO. 4	.....	25
ANNEX NO. 5	.....	26
ANNEX NO. 6	.....	27

INTRODUCTION

This Klaipeda Port Information Booklet for the LNG Carriers (hereinafter – the Booklet) provides general information of Klaipeda Seaport (hereinafter Port or Klaipeda Port), existing rules, approaching channel characteristics, procedures, etc. Terminal User is responsible for ensuring that LNG Carrier owner, its master and agent are familiar with the information provided herein prior to LNG Carrier arrival.

The Booklet is prepared on the basis of publicly available information, legal acts and good practice recommendations. The Booklet is for information purposes only, it does not replace, amend or withdraw any regulations issued by Port Authority and international organizations, but merely highlights the most important aspects of these regulations. All respective persons are obliged to make sure they have the latest versions of such regulations at their disposal and may not rely on this Booklet for the correct version of any applicable laws, regulations or international standards or practices. Terminal Operator is not responsible for the accuracy of the data provided.

For most recent and more detailed information, Terminal User, LNG Carrier owner or its master should contact the Port Authority or local agent.

Responsibilities

LNG Carrier master is responsible for obtaining all necessary permits and other documents before LNG Carrier enters Klaipeda Port.

LNG Carrier master is fully responsible for safe LNG Carrier navigation at Klaipeda Port and shall inform the Port Authority in the event of any dangerous situation.

LNG Carrier must always have the sufficient number of experienced English speaking crew on board for carrying out the LNG Carrier's operations safely and efficiently, including supervision and recording of cargo operations, and for immediate initiation and maintenance of ship/shore communication in case of emergency situations.

For the avoidance of doubt, Terminal User in relations with Terminal Operator shall be held fully liable for the responsibilities established for LNG Carrier owner or its master.

References to Port Regulations

1. Law on Klaipeda State Seaport of the Republic of Lithuania
2. Rules of Application of Klaipeda State Seaport Dues
3. Klaipeda State Seaport Shipping Rules
4. Regulations for Klaipeda State Seaport Operations
5. Orders of Harbour Master
6. Regulations for Provision of Towing Service at Klaipeda State Seaport

Full list and latest versions of Port Regulations can be found at Klaipeda Seaport Authority website: <http://www.portofklaipeda.lt/port-regulations>

Definitions used in this Booklet shall have the same meaning as used in Regulations for Use of Liquefied Natural Gas Terminal approved by the Terminal Operator unless different meanings are assigned hereunder or the context otherwise requires.

LNG TERMINAL CONTACT INFORMATION

KN Energies SC
Buriu str. 19, P.O.Box 81, LT-91003 Klaipeda
Phone: +370 (46) 391772
Email: info(eta)kn.lt
Company website: www.kn.lt

LNG Terminal Team
Email: Paslaugos(eta)kn.lt and Ing.operations(eta)kn.lt

EMERGENCY CONTACTS

Contact	Telephone Number / VHF
Port Control Department	+370 46 499704
UPS dispatcher – coordinator	Mobile phone: +370 612 54144 VHF 10 (Call sign: Radio 12)
Marine Rescue and Coordination Centre	+370 46 391257 (in emergency) VHF 16 (Call sign: Klaipeda Rescue Radio)
Vessel traffic Service	+370 46 499 691 UTB 9 (Call sign: Radio-5) VHF 9 and VHF 16
Port Police	+370 46 354563
LNG Terminal Security officer	+370 46 434104
LNG Terminal HSE manager	+370 46 297026
LNG Terminal Dispatch Office	+370 46 434100
Klaipeda Harbour Master	+370 46 499688 Email: ukt@port.lt
Emergency Response Centre (European Emergency Number)	112

1. GENERAL INFORMATION OF KLAIPEDA SEAPORT

1.1. Port Location and Description

Klaipeda Seaport is the northernmost ice-free port on the eastern coast of the Baltic sea, located on the west side of Lithuania. The Port operates 24 hours a day, 7 days a week and provides facilities for cargo handling, storage, and distribution, also ship repair and building. The Port geographic location is showed in navigation chart No. [LT560710](#). The Port is at position:

55° 40' 00" N.

21° 08' 00" E.

The Port channel boundary is marked by leading lines and buoys. In Port channel two way traffic is permissible for vessels of up to 200 m length. Regular depth surveys and the sedimentation control are arranged by Klaipeda Seaport Authority with special hydrographic vessel "Lotas". Detailed information can be found on Klaipeda Seaport Authority website: www.portofklaipeda.lt/en

1.2. LNG Carrier Arrival

Parameters of navigation channel:

- Least depth in the navigation channel and berth pocket alongside FSRU starboard side is provided by the Terminal operator in the following order. Terminal operator shall request twice a Year from the Klaipeda Seaport Authority information on the available depth of waters in the Port (bathymetric surveys) and shall provide, if and when received, such information to the Terminal User, LNG Carrier owner or its master upon their request. It is understood that Terminal operator shall not be held liable in case such information has not been obtained from the Klaipeda Seaport Authority (other than the reason that Terminal operator omitted to request such information) and that Terminal operator only transfers the information obtained from Klaipeda Seaport Authority without any verification on its content, completeness and/or correctness and cannot be held liable for its content, correctness and/or completeness.
- Maximum speed – up to 8.0 knots (apart from the manouvering);
- Maximum LNG Carrier length approx. 345 meters. Before arrival the LNG Carrier's mooring schemes shall be approved by LNG Carrier master and FSRU Operator. Furthermore, LNG Carrier master or his agent must obtain a prior written permission from the Harbour Master for a vessel of more than 200 meters in length to enter the Port.
- Maximum allowable LNG Carrier draft at LNG Terminal is 13.2 meters, at 0 water level and in the absence of sea swells. (Under Harbour Master order No. UK.7, dated May 27, 2015 – see Annex No. 4).
- Wind speed limits for FSRU and LNG Carriers with length up to 306,66 m are provided in Annex No. 3.

1.3. LNG Carrier and Cargo Limitations

Klaipeda FSRU Independence LNG terminal maximum limitations of LNG carriers are:

- length overall – 315.00 m.
- beam – 50.00 m.
- draught – 12.60 m.
- gross tonnage – 135,423 t
- deadweight – 94,732 t
- displacement (summer) – 150,102 t

KN Energies (ex Klaipedos nafta) carried out Q-flex type LNG vessel navigation tests in Klaipeda port at the current navigation conditions without exceeding the requirements of the Port Master mandatory instruction. As per navigation study Klaipeda port are suitable to accept Q-flex type LNG vessels.

Off-specification LNG delivered at LNG terminal:

- Temperature of LNG delivered at LNG terminal cannot be higher than -157 °C, unless agreed otherwise with Terminal Operator.
- Quality requirements of LNG delivered at LNG terminal are presented in Annex no. 6 “Natural gas Quality requirements“. Detailed conditions for quality requirements of LNG are provided in the Regulations for Use of the Liquefied Natural Gas Terminal section No. 7.5 “Requirements to Quality of LNG, LNG Quality and Quantity determination“.

1.4. Port Security (ISPS)

The Klaipeda Port is equipped with a number of sophisticated security systems belonging to Klaipeda State Seaport Authority, the state authorities, and the users of the Port land. These television, radiolocation, communication and signaling security systems cover the whole Port waters, territories, terminal perimeters and the Port gates. All Port security systems are regularly updated.

Klaipeda Seaport Authority coordinates and controls the Port land users, the stevedoring companies and the Port terminals compliance with security requirements.

All ships calling at the Port must submit to Port regulators, the information about the ship security.

1.5. Port Environment

Current information about the wind, current, water conditions, fog, ice, etc., can be obtained from the Vessel Traffic Service (VTS) via VHF channel 9. Online hydro-meteorological information can be found on website <http://www.meteo.lt>

The climate of Klaipeda region is mildly warm, wet, with comparatively warm and slightly snowy winters and cool summers. Such climate is a result of prevailing western air masses. This region is characterized by a sudden weather change due to the intensive cyclonic activity especially during cold season. The relative gravity of the Port channel water is approximately 1.0065 (depending on seasonal and other influences).

Wind

Weather conditions over the central part of the Port are based on perennial hydro-meteorological observations, with special attention to the wind, blowing from SW, W and NW directions, currents and wave rates.

Strong long-lasting and persistent winds have the major influence on marine coastal zone currents and waves formation. Strong winds are the winds with speed of $\geq 15\text{m/s}$, and storm/gale force winds are the wind with speed of $\geq 20\text{m/s}$. Wind exceeding 30m/s is considered as a hurricane. The highest averages of persistent wind speeds are observed in autumn – winter periods.

Attention. Please refer to Annex No. 2 “Harbour Master Mandatory Order for LNG Carriers with up to 345 m in Length Navigation“ and Annex No. 5 „Harbour Master Mandatory Order for LNG Carrier with up to 160 m in Length Navigation“ for wind speed limits applicable to LNG Carriers.

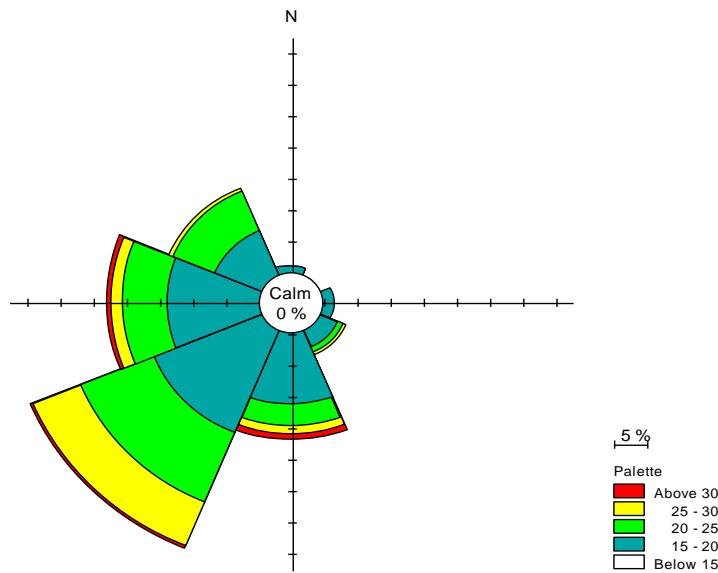


Figure 1. Wind rose diagram based on 1995-2008 observation data

Fog

Fog is a dangerous meteorological phenomenon. Due to the intensive condensation of water steam, upon foggy conditions visibility distance may be less than 0.54 nautical mile.

Fog can occur all year round, but two major occurrences are observed: one in the beginning of winter in December and one in spring in April. Fog mostly occurs when the wind blows from the West. Klaipeda seaside region is characterized by fog of advection origin during the cold season and specific coastal (front fog) fog that form at the end of summer, in autumn and in winter. At an average during the year fog occurs for 10 -12 days. Port navigation equipment (pilots navigation complex) allows to navigate vessels in less visibility.

Ice

Due to the influence of warmer waters from the Baltic Sea, intensive navigation, water depth and waves, the Klaipeda Port does not usually freeze. During milder winters small and large size ice patches may occur along the coast up to about 54 nautical miles offshore. During these mild winters or at the end of a frosty period, the ice cover at the lagoon may break due to thermal cracks in the ice and high wind velocities which begin ice drifting. These drifting ice formations may be dangerous to navigation in the Klaipeda Port. Very intensive ice drifting periods are also potentially dangerous for ships mooring near quay walls; ships cannot use the normal anchoring positions in the Port. Intensive ice moving periods usually last from 3 to 10 days, when ice floats from the lagoon to the sea through the Klaipeda Port. 1 – 2 days per year the ships navigation and mooring may be limited in Port area creates due to extremely strong ice drifting.

Currents

Current velocities at the Port gate may rate up to 4.0-4.5 knots. Such a flow speed may occur at spring thaw or subject to lasting strong westerly winds (storms), when the lagoon is flooded with massive sea water.

Current speed rate at the Port gate, depending on the debit flow (volume of water outlet from the lagoon) presented in table 2.

Table 1. Current speed rate at the Port gate, depending on the debit flow.

Debit, m ³ /s	1000	2000	3000	4000	5000	6000

v, m/s	0,35	0,71	1,07	1,43	1,79	2,14
v, knots	0,68	1,38	2,08	2,78	3,47	4,16

Minimum flow rate available in the summer and sometimes during cold winter, as well as during current change periods. In most cases, that is actually over 70% of time, the flow rate is 1500 m³/s to 2500 m³/s.

During the spring thaw, but also after lasting storms, due to heavy sea water ingress in the lagoon, flow rate may reach about 3000-4000 m³/s. In exceptional cases the debit is up to 5000-6000 m³/s.

Port gate navigation is dangerous to ships during strong winds SW, NW and N, wind velocity above 15m/s forming a lateral flow (along the coast), because large vessel drift speed can reach up to 3-4 knots which means that while heading at about 10 knots, drift angle is up to 12°-15°, rate dangerous for ships.

1.6. Towage

In accordance with Klaipeda State Seaport Shipping Rules and Annex No. 2 and Annex No. 3, tugs are used for LNG Carrier arrival, departure and operations in the Port. The number of tugs is indicated in the same Harbour Master mandatory order. The LNG Carrier's master can order additional tugs for operations but in any case, it should be not less than set by Harbour Master mandatory order. LNG Carrier master order tugs via the Port VTS or via its agent in the Port.

Contacts of Port Vessel Traffic Services:	
Phone:	+370 46 499 691
Fax:	+370 46 499 729
Email:	LET@PORT.LT
Listening Channel:	UTB 16
Working Channel:	UTB 9
Call sign:	Radio-5

Tugs service providers and tugs technical parameters are presented in Annex No. 1. LNG Carrier master via VTS channel can arrange a working channel with the tugs, which will usually, is VHF channel 6. The pilots work with the tugs via different channel.

In case of emergency or bad weather conditions tugs assistance may be ordered in the same way as before ship's arrival.

For LNG Carrier escorting, towing and mooring in Klaipeda Port tugs mooring lines are used. LNG Carrier escorting is passive. According to the LNG terminal regulations during the overall LNG loading time at the LNG terminal tug with firefighting equipment should be on duty. Previous regulation is applicable for LNGC over 160 meters in length.

1.7. Pilots and Pilotage

Within the Port all LNG Carriers must navigate with pilot assistance. The pilot services cost is included into Port water due which is paid during each LNG Carrier arrival to Klaipeda Port. Pilot competence is attested by the Lithuanian Maritime Safety Administration and retrained every five years, besides each year they have additional training in navigation simulators.

The pilot boat meets LNG Carrier in 1 mile to buoy No. 1. The pilot boat is identified by brightly orange color and uplift flag in daytime and light in nighttime. Each LNG Carrier arrival and departure is arranged by two pilots.

After the pilots have boarded the LNG Carrier, the master and pilots consider passage plan and exchange information which is important for the safe LNG Carrier voyage in navigation channel. English is communication language between LNG Carrier master and pilots. In order to avoid misunderstanding of commands pilot and tugs master communicate in Lithuanian.

Attention. The LNG Carrier mooring service at LNG terminal is provided by FSRU crew.

Contacts of Port Control Department	
Phone UPS dispatcher – coordinator:	+370 46 499 704

	+370 612 54144
Fax:	+370 46 499 646
Email:	OPERATOR@PORT.LT
Working channel:	VHF 10
Call sign:	Radio-12

After the Pilot has boarded the vessel, irrespective of the fact whether the vessel arrives to Klaipeda Port or departs out of it, the vessel's master must warn him that there is a dangerous or polluting cargo onboard.

1.8. LNG Carrier Anchoring Place

The designated area for anchorage of LNG Carriers is in the outer Port road, 5 nautical miles from buoy No. 1. to the North. According to WGS 84 the LNG Carriers anchorage location coordinates are:

55° 48' 00" N	20° 45' 00" E
55° 48' 00" N	20° 50' 00" E
55° 45' 48" N	20° 50' 00" E
55° 45' 48" N	20° 45' 00" E

The anchorage area depth is 31 – 35 meters. The holding ground is sand and clay. The designated area for anchorage of LNG Carriers is indicated in navigation charts.

Responsibility for property (anchors, etc.) sunk at the outer road and the inner Port waters through the fault of the LNG Carrier shall rest with the owner of such property.

1.9. Ballast Discharge

Prior to entry of the Port, LNG Carrier shall replace ballast waters with the Baltic Sea or North Sea waters (see HELCOM recommendations) except of the ships arriving from the Baltic Sea ports.

For stability and stresses the LNG Carrier must keep advisable quantity of the LNG Carriers summer draft at any moment during discharge/loading.

Ballast discharge shall be monitored by the LNG Carrier master. Discharge of contaminated ballast is punishable according to the laws of the Republic of Lithuania. LNG Carriers shall cover all expenses related to sea pollution control, clean-up operations, as well as any claims and/or requests for compensation of damages, including payments of fines applied by the governmental institutions of the Republic of Lithuania.

1.10. Port Pollution

If LNG Carrier master or its crew observe Port pollution, they immediately must report it to VTS, the FSRU Loading Master, the LNG Terminal Dispatcher Office and the Marine Rescue Coordination Centre (MRCC). In case pollution occurred due to the fault of LNG Carrier, all cargo operations must be suspended until the cause of the pollution has been established and clean-up operations completed to the satisfaction of the requirements of the Republic of Lithuania and the LNG Terminal.

Terminal Operator has a right to stop cargo operations or not allow LNG Carrier mooring if in his opinion there are obvious deviations from cargo or pollution requirements.

1.11. Flags and Signals

Within Port limits, from sunrise to sunset, all LNG Carriers shall fly their national flag and the national flag of the Lithuania. In addition, during stay in Port, LNG Carriers shall, comply with the International Code of Signals and display flags, shapes and lights as required by the International Regulations for the Prevention of Collision at Sea.

1.12. Ship Agencies

The LNG Carrier's agent is responsible for ordering and coordination of the pilots, tugs and any other services for the LNG Carrier.

The LNG Carrier's agent should advise the LNG terminal Operator of any other activities that the LNG Carrier may request to be permitted while at the Terminal, including:

- planned storing activities;
- crew changes;
- visitors to the LNG Carrier;
- cargo surveyor arrangements;
- other planned activities.

The ship agency providers list is published at Klaipeda Seaport Authority website:
<http://www.portoklaipeda.lt/companies/company/Agentavimas/391>

Ships which are going to enter into Terminal security zone should get Terminal approval. Any ship used by ship agency shall comply terminal safety requirements and/or approved by Terminal operator.

1.13. Port in Winter

Klaipeda State Seaport is ice-free port, because of the intensive traffic and currents from Curonian Lagoon. During winter time ice at navigation channel and near the berths is broken by tugs by the order of Port Authority. Ice drifting going from Curonian Lagoon at the end of winter, influenced by currents and winds bypass the LNG terminal because of the Pig Island impact.

1.14. Port Dues

LNG Carriers managers shall be obliged to pay port dues for using the port facilities. The Government of the Republic of Lithuania shall establish the types of port dues, their maximum amounts, and the principles of application of the dues. The following dues are payable at the Port: ship, navigation, berth, tonnage, sanitary and port water dues. The amount of Port dues depends on vessel gross tonnage.

Attention. LNG Carrier mooring alongside the FSRU is considered as double banking mooring (i.e. ship-to-ship (STS) transfer alongside).

1.15. Immigration and Customs

The Lithuanian Maritime Safety Administration (LMSA) may conduct LNG Carrier inspection as it is specified in the Paris Memorandum of Understanding on Port State Control.

The LNG Carrier agent or LNG terminal user, to which LNG Carrier arrives, is responsible for the Customs and Immigrations clearances. Documents which are necessary to perform customs and immigrations procedures should be submitted immediately by LNG Carrier master.

When LNG Carrier arrives to LNG terminal or before its departure the Customs and/or State Boarder Guard Control officers perform the inspection of the LNG Carrier.

Immigration procedures include:

- Customs or other officers boarding;
- Crew change formalities;
- Issue of crew passes;
- Vessel's clearance.

LNG Carrier is permitted to do crew changes at Klaipeda LNG terminal provided that safe operations of LNG Carrier will be ensured.

1.16. Medical Care

There are no medical facilities available at Port, emergency medical evacuation to shore may be organized by the LNG Carrier's Agent at the expense of the LNG Carrier. The LNG Carrier's Agent is responsible for logistical arrangements for the evacuees upon arrival on shore. Hospitals, clinics and dental offices are located near the Port areas at Klaipeda city.

1.17. Local Holidays

Event	Date

New Year's Day	January 1
Day of Restoration of the State of Lithuania	February 16
Day of Restoration of Independence of Lithuania	March 11
Easter	First Sunday and Monday of spring with full moon
International Labor Day	May 1
St. John's Day	June 24
King Mindaugas' Coronation Day	July 6
Assumption Day	August 15
All Saints' Day	November 1 and 2
Christmas eve	December 24
Christmas	December 25 and 26

2. NAVIGATION IN PORT

Klaipeda Seaport navigation channel starts at buoy No. 2 and extends for 5.5 nautical miles to the LNG Terminal. Whereas the Port channel consists of three straight intervals and three 15 – 25 degree turns, the entire navigation channel can be divided into separate parts that are relevant from navigation point of view:

- Entrance channel;
- Port gates;
- Inner channel from buoy No. 5 to buoy No. 9;
- Channel turn near buoy No. 9;
- Inner channel from buoy No. 9 to buoy No.19;
- Channel turn near buoy No.19;
- Smeltes water area.



Figure 2. A nautical chart of the Klaipeda Seaport entrance channel

Information provided in this chapter is general and cannot be treated as a firmed information. In all cases approved ship navigation study is a final document for data justice.

2.1. Entrance Channel

The entrance channel starts at buoy No. 2 in 0.7 nautical miles from Port gates and extends to Port gates. Vessels are affected by wind, wave disturbance and transverse flow, the direction of which depends on wind direction (according to the flow sensor data of the Melnarage Centre of Marine Research). The entrance channel is dangerous for outgoing vessels because the vessel makes 23 degree turn at the gates and faces two additional external forces: wave disturbance and transverse flow.

2.2. Port Gates

The Port gates with a turn at the buoy No. 5 is one of the most dangerous places at the Port from navigation point of view, where the distance between heads of Port gates makes up to 230 meters. Also there is a 23 degree turn at the Port gates marked with green buoy No.5. The vessels at this location are affected by the following forces: wind, waves passing through Port gates and a flow of changeable direction.

Since the cross-section of the channel at the Port gates is smaller than in the inner channel, therefore the flow here is heavier than in inner channel accordingly.

Due to the tight turn and strong flow of changeable direction the vessels greatly drift at Port gates and have little place to maneuver because of nearby breakwaters.

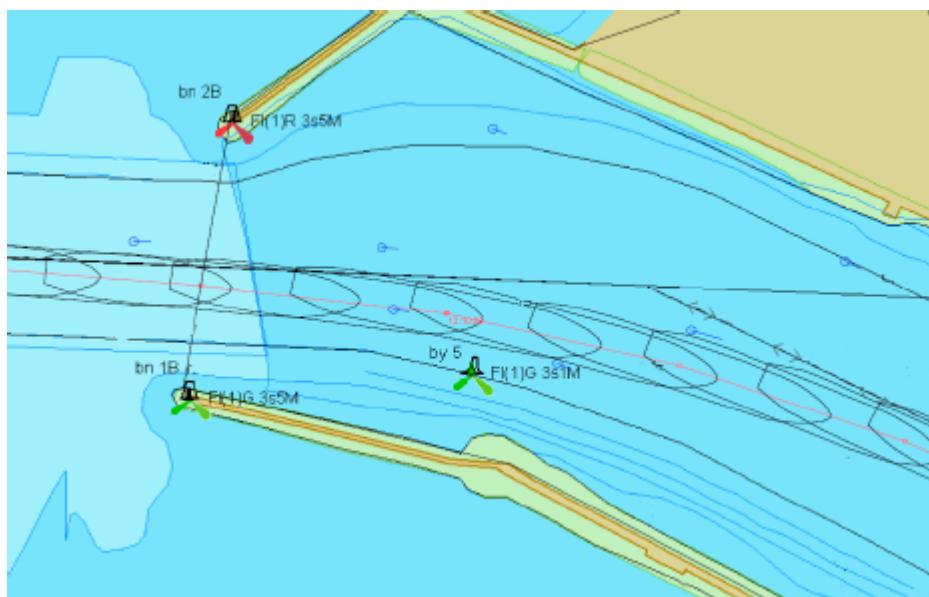


Figure 3. Nautical chart of the Klaipeda Seaport gates



Figure 4. Visual view of the Klaipeda Port gates

2.3. Inner Channel from Buoy No. 5 to Buoy No. 9

The length of the inner channel from buoy No. 5 to buoy No. 9 is 1 nautical mile. The vessels are affected by wind and axial flow.

Under the influence of axial flow, vessels drifting at this location are minimal and mostly depend on strong side wind. At higher drifting at this location the stern tug is being used to reduce vessel's speed and drifting.



Figure 5. A nautical chart of inner channel from buoy No. 5 to No. 9

2.4. Channel Turn at Buoy No. 9

Channel turn at buoy No. 9, where the channel turns by 25 degrees, is quite complicated from the navigation point of view, because when vessel turns the flow impacts its board, resulting the increase of vessel drifting. It is very perceptible when flow strength is greater than 1 knot.

The width of the channel from quays to the western edge is sufficient for safe passage of vessels, however, it is important to make the turn precisely in case the flow is greater than 1 knot and there is strong side wind in order to escape from approaching to quay and at the same time to avoid impact of passing vessels to moored ships.



Figure 6. A nautical chart of channel turn at buoy No. 9

2.5. Inner Channel from Buoy No. 9 to Buoy No. 19

The length of the inner channel from buoy No. 9 to buoy No. 19 is 2 nautical miles and the narrowest point is before quay No. 62. It is the safe place of the navigation channel, where vessels are affected by axial flow and wind.

Under the influence of axial flow, vessel drifting at this location is minimal and mostly depends on side wind, the impact of which at this location is also weak because of Curonian Spit.

2.6. Channel Turn at Buoy No. 19

Channel turn at buoy No. 19, where the channel turns by 15 degrees is quite similar to the turn at buoy No. 9 from the navigation point of view, because when vessel turns the flow impacts vessel's board, resulting the increase of vessel drifting. It is very perceptible when flow strength is greater than 1 knot. The width of the channel from western edge to piers is sufficient for safe passing of a vessel, however, in case of greater than 1 knot flow and stronger wind, it is required to assess future drift during the turn. Moreover, outgoing vessel gets into narrow place after the turn at quays No. 82 – 86, where the channel becomes narrow and the flow still influences the vessel's board.

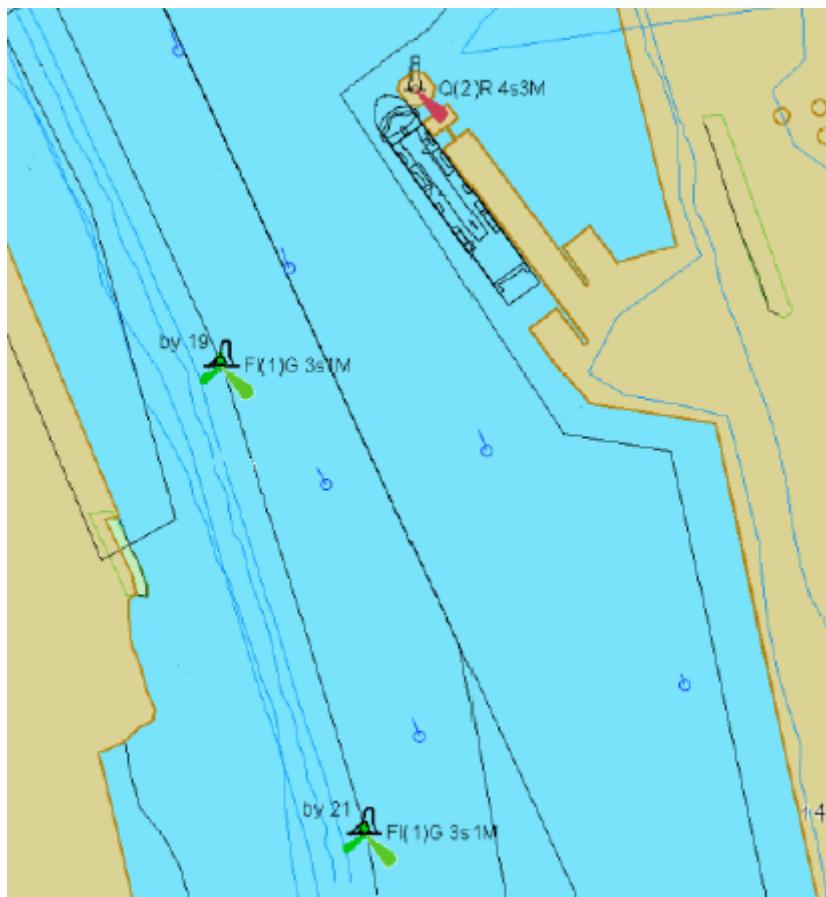


Figure 7. A nautical chart of inner channel at buoy No. 19

2.7. Smeltes Water Area

The length of Smeltes water area is almost 1 nautical mile.

The vessels are affected by wind and flow. It is the widest and safest vessel passing place; however, maneuvering and mooring start here. Vessel's stopping and turning area is the most difficult at this location of the Port water area under the Northern wind. If the flow is stronger than 1 knot and wind speed of S or N directions is greater than 10 m/s, it is very important to select appropriate position for turning, because when vessel turns and stops transversely to the flow, the constituent of both forces (wind and flow) can be greater than the force of tugboats used for mooring.

2.8. Recommendations for LNG Carriers

All LNG Carriers considering specific Port location, navigation channel and vessels traffic are recommended:

- To send LNG Carrier masters and Chief officers to at least 2 days simulation training of LNG Carrier arrival/departure or other operations together with pilots in the Lithuanian Maritime academy.
- To obtain from Klaipeda Seaport Authority all up to date information of Port and be familiar with LNG terminal regulations before LNG Carrier arrival to Port.
- To have valid agreement with tugs service providers in Port.
- To have agreement for quay hire, in case of emergency or bad weather conditions, with Klaipeda port stevedoring companies i.e. Joint-stock stevedoring company Klaipedos Smelte and Klaipeda stevedoring company Klasco, etc.

3. EMERGENCY PROCEDURES

3.1. Emergency situations management

When an incident occurs at the Terminal (ship-to-ship operation) the Terminal operator is in overall control of the incident. For all cases Terminal emergency response plan activates General Manager of SC KN Energies or Chief Operations Officer. Once emergency event is notified Emergency Situations Operations Centre (ESOC) must come together. An incident involving only the vessel e.g. engine room fire, shall be under the captain's control, although appropriate assistance shall be provided by the terminal. The terminal will assist and cooperate with the LNG Carrier by all means available this include informing "shore based" emergency services if necessary.

3.2. Initial notification

Having noticed an occurred emergency situation or a navigation incident the LNG Carrier crew shall immediately notify it to FSRU master and Vessel Traffic Service and take actions according to the LNG Carrier emergency plan.

3.3. Emergency at the Terminal

In the case of an emergency situation arising at the LNG terminal, which does not directly affect the LNG Loading/Reloading operation, Terminal Control Room shall inform the vessel via VHF channel 15. In the case of an emergency affecting the LNG Loading/Reloading operation, the following steps should be taken:

- Activate emergency shutdown (ESD-1) system
- Inform the LNG Carrier about the situation
- Enable protection means if not enabled
- Activate Terminal Emergency Response Plan.

3.4. Emergency signals

- 2 (two) audible sirens are installed on the Terminal jetty.
- A sounding red light signal on the Terminal jetty.
- Fire alarm. Continuous sounding with general alarm bells and/or whistle.
- General alarm. Seven short blasts and one long blast with general alarm bells and/or whistle.

3.5. Dealing with emergencies

3.5.1. Incident onboard the LNG Carrier

For all incidents occurred onboard the LNG Carrier while alongside the FSRU, emergency situation shall be handled by the LNG Carrier. LNG Carrier master has an obligation to inform Terminal about occurred incident via the fastest possible method (hot line, VHF/UHF, phone, ship's siren). Terminal shall apply its own internal emergency response plan.

3.5.1.1. Fire onboard the LNG Carrier

Actions to be taken by the LNG Carrier:

- ESD-1 activation
- Inform Terminal immediately +370 46 434100
- Establish communication with Vessel Traffic Services: VHF 9 and VHF 16 or UTB 9
- Establish communication with Emergency response teams
- Advise crew of danger
- Putting in action emergency plan.

3.5.1.2. LNG leaked onboard the LNG Carrier

Actions to be taken by the LNG Carrier:

- ESD-1 activation
- Inform Terminal immediately +370 46 434100
- Establish communication with Vessel Traffic Services: VHF 9 and VHF 16 or UTB 9
- Establish communication with Emergency response teams
- Advise crew of danger
- Putting in action emergency plan.

All spills must be report to Vessel Traffic Services VHF 9 and VHF 16 or UTB 9, Klaipeda Seaport UPS dispatcher VHF 10, and Terminal operator. Failure to comply with these will be punishable by law.

3.5.1.3. Incidents during LNG Carrier passage in Klaipeda port

In case of:

- Collisions or Groundings
- Blackout
- Escort tug(s) failure or tug(s) rope(s) broken
- Pilot illness
- Terrorist attack
- Man overboard
- Unauthorized vessel hampering
- Sudden weather phenomena and strong wind.

That may endanger the safety of shipping, the following steps should be taken:

- Raise alarm onboard: general alarm / whistle
- Establish communication with Vessel Traffic Services: VHF 9 and VHF 16 or UTB 9
- Establish communication with Emergency response teams
- Advise crew of danger
- Inform Terminal operator +370 46 434100
- Update local port contacts (emergency contacts)
- Update local vessel traffic via GMDSS/ VHF/ AIS.

3.5.2. Incident at the Terminal including FSRU

3.5.2.1. Fire

Actions to be taken by the Terminal:

- ESD-2 activation
- Inform LNG Carrier immediately
- Activating Terminal emergency response plan
- Joint decision with the LNG Carrier master for the vessel to depart immediately.

3.5.2.2. LNG leakage onboard FSRU

Actions to be taken by the Terminal

- ESD-1 activation
- Inform LNG Carrier immediately +370 46 434100
- Informing the services: Vessel Traffic Services VHF 9 and VHF 16 or UTB 9, Klaipeda Seaport UPS dispatcher VHF 10
- Activating Terminal emergency response plan.

The FSRU Loading Master, in consultation with the master of the LNG Carrier, makes a decision on the necessity of an emergency unberthing.

Annex No. 1

TUGS LIST

No.	Tug name, Owner	External firefighting equipment	Propulsion	Draft (m)	Horse power, AG (kW)	Bullard pull (t)
1.	KLASCO-1 Klasco Towage Assistance	1200 cbm/h	ASD	4.6	4519 (3370)	55
2.	KLASCO-2 Klasco Towage Assistance	1200 cbm/h	ASD	4.6	4519 (3370)	55
3.	KLASCO-3 Klasco Towage Assistance	1200 cbm/h	ASD	4.6	4997 (3728)	59
4.	TAK-4 UAB „Towmar Baltic“	-	TT	4.8	1740 (1280)	30
5.	TAK-6 UAB „Towmar Baltic“	600 cbm/h	ASD	4.8	4600	55
6.	TAK-9 UAB „Towmar Baltic“	2400 cbm/h	ASD	5.7	5168	71
7.	TAK-10 UAB “Towmar Baltic”	1200 cbm/h	ASD	4.8	5000 (3730)	61
8.	TAK-11 UAB “Towmar Baltic”	1200 cbm/h	ASD	4.8	5000 (3730)	61
9.	SOLL TENGIZ UAB “Smit Octo”	1200 cbm/h	-	5.8	3920 (2880)	60

Company	Contacts
SC „Klaipėdos jūrų krovinių kompanija“ branch „Klasco towage assistance“	Tel.No.: +370 46 399585; Fax.No.: +370 46 399119, Email: kta@klasco.lt
JSC „Towmar Baltic“	Tel. No.: +370 46 303427; Fax.No.: +370 46 303428 Email: info@towmar.lt
JSC “Smit Octo”	Tel. No.: +370 46 314778

Unofficial translation

HARBOUR MASTER

MANDATORY ORDER FOR THE LNG CARRIER WITH UP TO 345 METERS IN LENGTH AND FSRU FOR NAVIGATION AND SAFE MOORING

March 9, 2022 No. KN-4

Taking into account LNG Carriers' dynamic mooring report submitted by KN Energies on 13-12-2013 and the Report of pilot training in navigational simulator of Lithuanian Maritime College dated 30-12-2013, and practical experience of pilots in navigating LNG Carrier's and large container vessels (up to 400 meter in length) in Klaipeda port:

1. I impose the following limits and requirements for FSRU and LNG Carriers with length of up to 345 meters in length:
 - 1.1. LNG Carriers and FSRU are allowed to navigate in daylight only with the wind speed with less than 10 m/s and current less than 1 knot.
 - 1.2. LNG Carriers and FSRU must have Pilot Plug, and pilots must use mobile pilotage equipment.
 - 1.3. During escort, convoy, leading and mooring LNG Carriers and FSRU 4 tugs shall be used.
 - 1.4. Before passing berth No. 1-4 at least 3 tugs must be connected to LNG carrier over 300 m in length, and at least 1 tug must be stand-by between LNG carrier and ships moored at berth No.1-4.
 - 1.5. If the wind intensifies, the Master of the FSRU and the Master of LNG Carrier, which is moored to the FSRU, must ensure safe vessel berthing or if planned in advance, take the vessel to the sea or berth to an alternative berth, where safety of the vessel is ensured.
 - 1.6. In case of emergency situation, VTS while organizing traffic and allocating tugs in port must pay utmost attention to LNG terminal and ships moored to the terminal.
2. I hereby declare ineffective Mandatory Harbour Master order No. KN-4, dated on 26th March, 2020.

Harbour Master Vladas Motiejūnas

Annex No. 3

Wind speed limits for FSRU and LNG Carriers.

Wind speed (forecasted)	Berthing*	Tugs alongside*	STOP cargo operation	Disconnection	Evacuation
> 10 m/s (LNGC***/FSRU)	No	-	-	-	-
≥ 20 m/s (LNGC****)	No	Yes	-	-	-
≥ 23 m/s (LNGC**)	No	Already ordered	Yes	Yes	-
≥ 23 m/s (FSRU)	No	Yes	-	-	-
≥ 26 m/s (LNGC)	No	Already ordered	Already stopped	Already disconnected	Yes
≥ 26 m/s (FSRU)	No	Already ordered	Yes	Yes	-
≥ 34 m/s (FSRU)	No	Already ordered	Already stopped	Already disconnected	Yes

Remarks: 1) The navigation in and out of Port navigation channel for LNG Carriers from 160 meters to 345 meters in length is possible in cases: when wind speed is less than 10 m/s or 20 knots.
 2) * Wind speed limits for marked operations are imposed by the Harbour Master. For more details see Annex No. 2 and Annex. No. 5.
 3) ** The limit is applicable for LNG Carriers from 160 meters to 306,66 meters in length. For LNG Carriers more than 306,66 meters in length the limit is ≤ 22 m/s.
 4) *** As per Harbour Master Mandatory Order No. KN-8, dated November 16, 2018, the limit is not applicable for LNG Carriers with up to 160 meters in length. For more details see Annex No. 5.
 5) **** The limit is applicable for LNG Carriers from 160 meters to 306,66 meters in length. For LNG Carriers with up to 160 meters in length the limit is ≤ 23 m/s. For LNG Carriers more than 306,66 meters in length the limit is ≤ 18 m/s. The limit is verified during Dynamic Mooring Analysis and assessed by Optimoor.

Unofficial translation

KLAIPEDA STATE SEAPORT AUTHORITY
HARBOUR MASTER

ORDER
ON PERMISSIBLE VESSEL DRAFT
(AT ZERO WATER LEVEL IN THE PORT OF KLAIPEDA)

October 26, 2021 No. UK-19

Klaipeda

On the basis of data submitted by the Hydrographs of the Vessel Traffic Service regarding minimum depths in Klaipeda Port waters:

1. I hereby determine the permissible maximum vessel draft alongside the quay No. 157:

THE NUMBER OF THE QUAY	TOTAL OPERATIONAL (MOORING) QUAY LENGTH (M)	PERMISSIBLE MAXIMUM VESSEL DRAFT ALONGSIDE THE QUAY (M)	OPERATIONAL (MOORING) QUAY LENGTH (M) FOR SPECIFIC PERMISSIBLE MAXIMUM VESSEL DRAFT
157	374.03	13.4	374.03

2. I hereby declare ineffective the previous orders of the Harbour Master on permissible vessel drafts within the abovementioned location of Klaipeda port.

Harbour Master Vladas Motiejūnas

Unofficial translation

HARBOUR MASTER

MANDATORY ORDER FOR NAVIGATION OF LNG CARRIERS WITH UP TO 160 METERS IN LENGTH

November 16, 2018 No. KN-8

Taking into account LNG Carriers' navigation and mooring peculiarities in Klaipeda port,

1. I establish the following limits and requirements for LNG Carriers with up to 160 meters in length:
 - 1.1. Mandatory Harbour Master order No. KN-4 "For LNG Carriers with up to 345 meters in length navigation" and clause No. 72 of Klaipeda Port Shipping rules are not applicable.
 - 1.2. LNG Carrier must have an active "Pilot Plug" connection.
 - 1.3. If wind is anticipated in excess of 23 m/s, LNG Carrier moored to the FSRU must order the sufficient number of tugs for ensuring safe stay.
 - 1.4. Once the forecast (gale warning) is received with expected wind of more than 26 m/s, LNG Carrier which is moored to the FSRU must be taken in advance to the sea or berthed to an alternative berth where safety of the Carrier shall be ensured during the storm.
 - 1.5. In case of emergency situation, VTS while organizing traffic and allocating tugs in port must pay utmost attention to LNG terminal and ships moored to the terminal.
2. I hereby declare ineffective Mandatory Harbour Master order No. KN-3 dated 23rd December, 2016.

Harbour Master Adomas Alekna

Unofficial translation

Table 1. Gas calorific value and Wobbe index

Parameter	Limit values	
Reference conditions, temperature (combustion / measurement) °C	25/0	
	min	max
Gross heating value, kWh / Nm ³	≥ 10.41	
Gross Wobbe index, kWh / Nm ³	14.02	15.51

Table 2. Natural gas Quality requirements

No.	Parameter	Value
1.	Nitrogen N ₂ , % mol	≤ 3
2.	Carbon Dioxide CO ₂ , % mol	≤ 2.5
3.	Oxygen O ₂ , % mol	≤ 0.02
4.	Methane number	≥ 65
5.	Relative density	0.55–0.70
6.	Hydrogen sulphur H ₂ S, g / m ³	≤ 0.007
7.	Mercaptane sulphur (w/o odorant), g / m ³	≤ 0.016
8.	Quantity of liquid phase water and hydrocarbons	impermissible
9.	Mechanical impurities, g / m ³	≤ 0.001
10.	Water dew point temperature ⁴ , °C (4 MPa)	< -10
11.	Hydrocarbon dew point temperature, °C (0.1–7.5 MPa)	< -2
12.	Total amount of sulphur (w/o odorant), g / m ³	< 0.03
13.	Hydrogen H ₂ , % mol	≤ 0.1

* Reference: [Table 1](#) and [Table 2](#)

In case of discrepancies, the Terminal Users shall bear responsibility as it is specified in the Regulations.