Ship/Shore Compatibility Procedure

Hamina LNG Oy
2696139-5

Satamantie 4 PL26
49460 Hamina

LNG Terminal
Port of HaminaKotka

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49460 Hamina

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1. General description

This Ship/Shore Compatibility Procedure defines the steps for the compatibility study and approval of a Vessel and/or its sister vessel(s), required for all LNG carriers and LNG-powered vessels for them to be accepted to call at the Hamina LNG Terminal. Only vessels that have obtained the Final Vessel Approval are permitted to be moored and to unload, load or bunker at the Terminal.

In addition to anything set out in this Ship/Shore Compatibility Procedure, all vessels intending to use the Hamina LNG Terminal must comply with all applicable international and national rules and standards, recognized industry guidelines and best practices. All vessels must follow Port of HaminaKotka regulations and Hamina LNG Terminal Rules.

The Terminal Operator ensures that all vessels, owners and operators who intend to use its facilities go through a safety, quality and risk management assessment process before obtaining approval to enter the Hamina LNG Terminal.

The Terminal User shall ensure, at no cost to the Terminal Operator, that each Vessel is fully compatible with the Terminal facilities. Approval granted by the Terminal Operator under this Procedure is without prejudice to the obligations and liabilities of the Terminal User, Vessel Owner or any third party relating to the Vessel or its sister vessel(s) and shall not relieve the Terminal User or Vessel Owner from ensuring compliance of the Vessel in all required aspects.

The Procedure is intended to ensure that appropriate care is taken regarding ship/shore compatibility and safety prior to loading/bunkering/unloading at the Terminal, and its conclusions, whether resulting in the final Approval or arrived at under any individual steps, are not to be relied on for any other purposes.

The Terminal Operator may change, amend and update this Ship/Shore Compatibility Procedure and any annexes thereto without incurring any liability.

2. Scope

This document is applicable to all LNG carriers and LNG-powered vessels that intend to call at the Hamina LNG Terminal.

3. Definitions and Abbreviations

Cargo: liquefied natural gas (LNG).

Classification Society: Any classification society being a member of the International Association of Classification Societies (**IACS**) with previous experience of classing LNG vessels

Loading Master or Terminal Operator's Loading Master: HLNG's representative dedicated to execute the Ship/Shore Compatibility Study for the LNG carriers or LNG-powered vessels intending to call at the Terminal. Email address for the Loading Master is loadingmaster@haminalng.fi

Ship/Shore Compatibility Procedure or Procedure: The process set out in this document which the Terminal Operator and Terminal User and/or Vessel Owner undergo to confirm that a particular LNG carrier or LNG-powered vessel is able to safely berth, moor, discharge its Cargo, unmoor and unberth

at the Hamina LNG Terminal. It will consider at least the size and specifications of the Vessel and the Terminal, mooring arrangements, the ability to safely deploy the gangways, the unloading arms and establish the communication between the terminal and the LNG Carriers (ESD link and verbal communication principles)

Terminal User: The entity purchasing Terminal services from the Terminal Operator (or from another Terminal User on the secondary market). Becoming a Terminal User requires entering into the Terminal Services Contract

Terminal Operator or Hamina LNG or HLNG: Hamina LNG Oy (business ID: 2696139-5), having its business address at Terminaaliranta 5, 49460 Hamina, Finland

Terminal or Hamina LNG Terminal: The LNG terminal operated by Hamina LNG Oy providing services regarding reception, storage and further shipment of LNG and is located at the address Terminaaliranta 5, 49460 Hamina, Finland

Terminal Services Contract: The contract relating to the terminal services required to be entered into between the Terminal User and the Terminal Operator. Entering into the contract gives the applicant the status of a Terminal User

Owner or Vessel Owner: The owner, charterer, or technical operator of a particular Vessel, whoever of the above is responsible for contracting with Hamina LNG

Port: HaminaKotka Satama Oy and that company's port in Hamina

Vessel: An LNG carrier or LNG-powered vessel for which Vessel Approval is requested from the Terminal Operator.

Vessel Approval or Final Vessel Approval: The final authorization granted to Vessel upon the successful completion of this Ship/Shore Compatibility Procedure to call at the Hamina LNG Terminal

Vetting: The process that will evaluate the conditions of LNG carrier to carry their cargoes and discharge them. The vetting process takes into account the use of Ship inspections (e.g. SIRE or ship owner), Port State Control inspections, Flag State profile, Class profile, Casualty data, Owners profile, Terminal feedback and for older vessels a Condition Assessment Program certificate or Fatigue analysis.

SSCS: Ship/Shore Compatibility Study

ISGOTT: International Safety Guide for Oil Tankers and Terminals

IMO: International Maritime Organization

GIIGNL: International Group of Liquefied Natural Gas Importers (Groupe International des Importateurs de Gaz Naturel Liquefié)

SIGTTO: Society of International Gas Tankers and Terminal Operators

LNG: Natural gas in a liquid state at or below its boiling point and at a pressure of approximately 1 atmosphere

Remark: Non-compliance with SIGGTO, OCIMF or other applicable safety guidelines

OCIMF: Oil Company International Marine Forum

SIRE: Ship Inspection Report Program

Deficiency: Non-compliance with any of the following:

- International Conventions
- Flag State laws and regulations
- Classification Society rules
- Port State and local authorities regulations

4. Quality and volume requirements

The requirements related to advance notifications, and to quality and volume of Cargo are set out in the Hamina LNG Oy's Terminal Rules Section 34.4 (Notifications to the Operator) and Section 30 (LNG quality and quantity) and shall be applied to Vessels undergoing the Procedure.

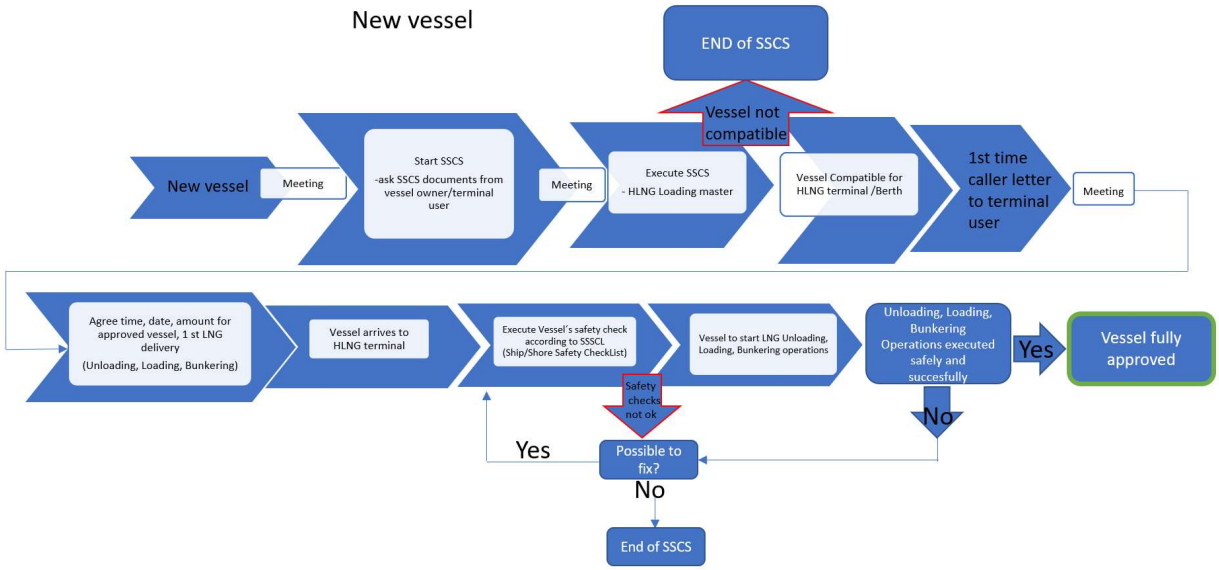
5. Liabilities, insurances and restrictions on the Terminal services

The liabilities of the Terminal Operator and the Terminal User pertaining to this Ship/Shore Compatibility Procedure are subject to the provisions set out in the Hamina LNG Oy's Terminal Rules Chapter 13 (Liability).

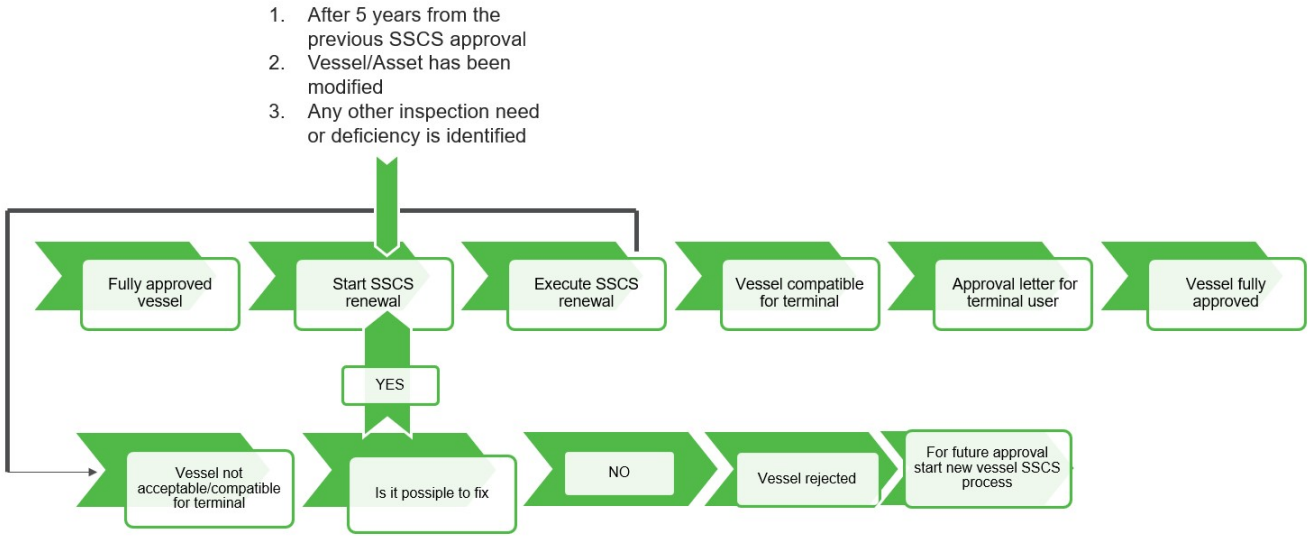
Applicable insurance requirements and restrictions on the terminal services have been set out in the Hamina LNG Oy's Terminal Rules Section 26.1 (Terminal User responsibilities) and Chapter 10 (Service interruptions and restrictions).

6. Compatibility Flow Chart

Flow chart for new vessels



Flow chart for previously approved vessels



7. General Ship/Shore Interface

The ship/shore interface begins with the arrival of the LNG carrier or LNG-powered vessel. The vessel is met by a trained pilot and tugs of sufficient power to maneuver any LNG carrier or LNG-powered vessel the Terminal is designed to accept. Navigational aids mark the entrance channel and assist the vessel during its approach to the jetty. Instrumentation devices to assist the vessel's approach to the berth may include approach speed indicator, tide and current indicator, wave height and water depth indicator. This first phase of the ship/shore interface is the responsibility of the Port of HaminaKotka, and the Terminal User and/or Vessel Owner shall make the necessary arrangements directly with the Port.

Finally, the vessel and the Terminal will be joined by a linked Emergency Shutdown (ESD) system designed to stop cargo liquid and vapor flow in the event of an emergency and to bring the cargo handling system to a safe, static condition.

The principal areas of direct ship/shore compatibility are (Annex 1), subject to Port of HaminaKotka instructions and guidelines:

- Mooring arrangement
- Fender arrangement
- Gangway
- Unloading/loading platform and unloading/loading arms
- LNG Cargo Pumps and Transfer Rates
- Vessel limitations
- Manifold arrangements
- Communications link / Emergency Shutdown System (ESD)

- CTS (Custody Transfer System) and other commercial principles for cargo handling
- Support craft (www.haminakotka.com)

8. Vessel Approval and structure of this Ship/Shore Compatibility Procedure

The main objective of the Procedure is to ensure the compatibility of the Vessel requesting access in terms of mechanical design, communication and safety. The procedure aims at actively ensuring the safety of the operations at the LNG terminal and at maintaining the excellent safety record of the LNG industry.

The approval procedure mainly relies on existing international rules and regulations implemented by the flag State of the Vessel or by port State of the Terminal, and the recommendations of professional associations such as ISGOTT, OCIMF, SIGTTO or GIIGNL.

Terminal Users nominating LNG carriers or LNG-powered vessels to undertake unloading, loading or bunkering at Hamina LNG Terminal shall undergo the following chronological steps for each nominated vessel in order for that vessel to obtain access to the Terminal:

- Section A: Start SSCS
- Section B: SSCS execution by HLNG Loading Master
- Section C: Meeting after SSCS execution, 1st vessel arrival
- Section D: Safety Checks
- Section E: Jetty Operations Test and Vessel Approval

(• Section F: Previously Approved Vessels)

8.1 Section A – Start SSCS

The main objective of the preliminary information exchange during this first step is to collect all necessary material (including without limitation information, data, drawings, certificates and Optimoor study) for evaluating the compatibility of the Vessel with the Terminal (ship/shore compatibility).The process requires prudent exchange of information between the Terminal User and/or the Vessel Owner and the Terminal Operator, which is essential to assess the possibility to accommodate the Vessel to berth and the Terminal and to enhance the safety of operations while alongside and manouvering within the Port.

The Terminal Operator makes the following documents available to the Terminal Operator, published and publicly available from the Terminal Operator's webpage:

- Ship/Shore Compatibility Procedure for Hamina LNG Terminal (this main document)
- Ship/Shore Compatibility Study (SSCS) for Hamina LNG Terminal (Annex 1)
- Ship Loading, Unloading and Bunkering Procedures for Hamina LNG Terminal (Annexes 3, 4 and 5)

Terminal User should procure Port Regulations, Berth and Local Condition Guidelines to Ship Masters and other general instructions and guidelines of the Port related to marine aspects of port access and berthing directly from the Port of HaminaKotka and familiarize itself with their contents. Their availability, accuracy and completeness are the responsibility of the Port.

After receiving a request from the Terminal User wishing to nominate a Vessel to load, unload or bunker at the Terminal in order to use its services, the Terminal Operator will request, and the Terminal User and/or the Vessel Owner shall provide, the following SSCS documentation

01 Filled SSCS checklist (Annex 1)

02 Vessel's General Arrangement

03 Optimoor study

04 Gas Form C

05 OCIMF Vessel Particulars Questionnaire = SIRE (less than 1 year old)

06 OCIMF TMSA Report (less than 1 year old)

07 Pump capacity curves and maximum discharge rate

08 Survey Class Status Report (less than 1 month old)

09 Vessel's certificate of entry with its P&I Club

10 Cargo tank gauging tables

11 CTMS (Custody Transfer Measurement Systems) calibration certification

12 The plan, all positions and safe working loads of mooring bits and enclosed bearing housings

13 Drawing or diagram showing rated capacity of towing lugs

14 ESD (Emergency Shut Down) link specifications

15 Spool piece list

16 Valid CAP (Condition Assessment Program) rating (over 15 years old vessels)

17 COC (Condition of Class) certificate

18 Photos from the vessel

19 Fire control plan

8.2 Section B – SSCS Execution by HLNG Loading Master

In order to verify technical compatibility as well as operational and safety related aspects, it is important to ensure that the Vessel Owner / Terminal User and the Terminal Operator acknowledge and understand each other's ship/shore safe work procedures and are able to conduct their activities in a safe manner. For these purposes the SSCS documents exchanged during the first step should be carefully reviewed. Also Port of HaminaKotka regulations shall be followed.

The Terminal User and/or the Vessel Owner shall send the requested information to the Terminal Operator in a complete and organized form as a single document package. The Terminal Operator´s Loading Master will carefully review the provided information for its completeness and ensure in cooperation with the Vessel Owner and/or the Terminal User that the information necessary for evaluating the compatibility of the Vessel has been exchanged. During the information review and SSCS execution, continuous communication is required between the party providing the information and the Loading Master.

The ship/shore compatibility study covers in particular the documentation and subject matter referred to under Section 8.1. The process is comparative in nature and is carried out by comparing Vessel and Terminal specifications side by side in order to determine whether the Vessel and the Terminal are compatible with each other.

After conducting the ship/shore compatibility study, the Terminal Operator will conclude whether the Vessel is *compatible* or *incompatible* and will inform the Terminal User of the conclusions arrived at. If the Vessel is compatible, the Terminal Operator will send a 1st Time Caller Letter to the Terminal User substantially in the form presented in Annex 6.

8.3 Section C, Meeting after SSCS Execution

Pursuant to the ship/shore compatibility study, a meeting is arranged, which shall be attended to by at least the representatives of the Vessel Owners, the Terminal User and the Terminal Operator, with possible additional participation by the representatives of the Port, pilots, and local ship agents.

The purpose of such meeting is to discuss the outcome of the SSCS execution and arrange for the early discussion of the ship/shore interface for the purposes of a safe 1st vessel arrival. The matters on the agenda of such meeting may include:

- Conclusions of the SSCS execution
- General measures of nautical management (nautical admission policy)
- Mooring arrangements (Optimoor calculation note)
- Towing method of the tug (towing procedure)
- Overview of the ship-to-shore interface procedures
- Technical interfaces
- Manifold configuration, including loading arms, connectors, flange surfaces and joints
- Processes, including cooldown procedure (part of unloading procedure), unloading, bunkering and loading procedures, as applicable (Annexes 3, 4 and 5)
- Custody transfer method
- Bunkers and other supplies

8.3.1 Preparations for 1st Vessel Arrival

After receiving the 1st Caller Letter, Terminal User may start preparations for 1st Vessel Arrival. Selection of the operational function (unloading, loading or bunkering) shall be confirmed by the Terminal User.

Before 1st Vessel arrival, the Terminal User shall in cooperation with the Terminal Operator arrange the following preparations:

- Acceptance for Vessel to visit the Terminal
- Agreement on a time window for 1st Vessel arrival (date and time)
- Agreement on planned Cargo amount for 1st Vessel arrival
- Notification by Terminal User or Vessel Operator to Terminal Operator concerning properties of the planned Cargo (Quality, Density, temperature etc.) as required by Section 34.4.1.(b) ("*Loading Notification*") of Terminal Operator´s Terminal Rules.

The Terminal User is responsible for making any required arrangements with the Port, including, without limitation, scheduling of the departure and arrival, any arrival, departure and other notifications towards the Port, arranging any required mooring and unmooring assistance, towing, tugging, or escort service and payment of fees charged by the Port. The Terminal Operator assumes no responsibility for Port operations or availability.

Terminal Operator will inform the Terminal User if any planned maintenance or unexpected circumstances are affecting Terminal operations.

8.4 Section D – Safety Checks

In order to verify safety related aspects, it is important to ensure that Vessel Crew and Terminal Operator acknowledge and understand each other's ship/shore safe work procedures and conduct their activities in a safe manner. Also Port of HaminaKotka rules shall be followed

Terminal User and/or the Vessel owner shall present a valid SIRE inspection report to the Terminal Operator.

Upon arrival, Safety Checks are conducted in accordance with the SSSCL checklist (Annex 2: ISGOTT Sixth edition). The Terminal Operator´s Loading Master is involved in all activities with main focus on safety checks executed in berth. During the SSSCL execution phase and safety inspection, continuous communication is required between the Vessel crew and the Loading Master / Terminal control room operator.

The SSSCL Checklist covers the following topics:

- pre-arrival
- after mooring
- pre-transfer
- during transfer
- after transfer

The Loading Master ensures in cooperation with the Vessel crew that all relevant information required for the Safety Check has been gathered and exchanged.

The Terminal Operator assesses safety aspects in accordance with the SSSCL checklist (Annex 2). The assessment takes into consideration the topics covered by the SSSCL checklist and is conducted by the Terminal Operator´s Loading Master, who will conclude whether it is safe to proceed to the LNG transfer phase. The Vessel Crew is informed of the conclusions of the assessment.

If the assessment shows that it is not safe to proceed, the Terminal Operator and the Vessel crew will in good cooperation endeavor to solve any identified Remarks or Deficiencies so that safety requirements are fulfilled and a safe LNG transfer can be guaranteed. Safety Check in accordance with the SSSCL checklist will be reconducted after corrective measures has been completed.

If the corrective measures fail and it is not possible to fix the identified Remarks or Deficiencies and a safe LNG transfer cannot consequently be executed, the Terminal Operator concludes that the Vessel is *incompatible*. All parties are informed immediately by the Terminal Operator of such a conclusion.

8.4.1 Ship Inspections

The Terminal Operator is not vetting vessels but reserves the right to have a Vessel vetted, and it may at its discretion require a ship inspection (SIRE inspection) before the first berthing of the Vessel. Such inspection will be performed by an inspector approved by the Terminal Operator.

Acceptance of the Vessel by the Terminal Operator following such inspection shall not affect the contractual obligations of any party or their responsibility for the compliance of the Vessel with applicable rules and regulations or for consequences of any non-compliance. The Terminal Operator is not responsible towards the Vessel Owner, the Terminal User or any third parties for the completeness or correctness of the inspection. Not requiring a vetting before Vessel Approval is without prejudice to the Terminal User's or Vessel Owner's obligations and liabilities.

Terminal User and/or Vessel Owner shall provide the Terminal Operator the list of Remarks and/or Deficiencies (if any) identified in the SIRE inspection. Terminal User shall inform the Terminal Operator of the implementation and timetable of necessary corrective measures for fixing the Remarks and/or Deficiencies. Based on the information received, the Terminal Operator will in accordance with prudent practice and taking into consideration safety and operational aspects decide whether the Vessel can be received and the planned operations carried out at the Terminal.

The Terminal User and/or Vessel Owner shall immediately notify the Terminal Operator if any of its LNG carriers or LNG-powered vessels (whether a new vessel or pre-approved or fully approved under this vessel approval procedure) have been rejected or have failed a ship inspection at another LNG terminal. The Terminal User shall provide the Terminal Operator with all relevant technical details and information in this regard.

8.5 Section E, Jetty Operations Test and Vessel Approval

Based on the outcome of the previous steps, the Vessel is either approved for unloading/loading/bunkering testing or rejected as an incompatible vessel.

8.5.1 Step E.1 Unloading/Bunkering/Loading Test

In order to ensure a safe LNG transfer (unloading, bunkering, loading) and to verify the compatibility of the Vessel with the Terminal, an unloading/bunkering/loading test must be performed before the first actual transfer.

Before the start of the jetty operations, a pre-discharge meeting is held on board the Vessel. During this meeting:

- A review and confirmation of the SSCS (Annex 1) is completed.
- A final version of the SSCS (Annex 1) is signed by the Vessel Master and the Terminal Operator's Loading Master
- CTS (Custody Transfer System) checks and other relevant commercial aspects related to LNG cargo transfer are confirmed
- Vessel Master or representative and Hamina LNG Loading Master check the ship/shore safety interface according to the SIGTTO Ship Shore Safety Check List (SSSCL) (Annex 2)
- Discussion of, and agreement on, any other matters necessary for ensuring the safety and proper execution of the Unloading/Loading/Bunkering test, to the extent that these have not been considered in the SSCS or the SSSCL, including emergency procedures and contingency arrangements, communication protocols and responsibilities, and procedure for starting and completing the jetty operations test process.

Upon the completion of the above steps, the unloading/bunkering/loading test can take place. The main purpose of the unloading/bunkering/loading test is to assess the actual understanding of the Vessel and the Terminal interface by the Vessel Crew. After the test, Terminal Operator´s Loading Master will perform an assessment and conclude whether it is safe to proceed to the final LNG transfer phase.

If the assessment shows that it is not safe to proceed, the Terminal Operator and the Vessel Crew in good cooperation endeavor to solve any identified Remarks or Deficiencies so that safety requirements are fulfilled and a safe final LNG transfer can be guaranteed.

SSSCL will be reconducted after corrective measures have been completed.

If the corrective measures fail and it is not possible to fix the identified Remarks or Deficiencies and a safe final LNG transfer cannot consequently be executed, the Terminal Operator concludes that the Vessel is *incompatible*. All parties are informed immediately by the Terminal Operator of such a conclusion.

8.5.2 Step E.2 – Final Vessel Approval

Based on the results of the unloading/bunkering/loading test, the Terminal Operator will conclude whether the Vessel is

- compatible and fully approved, and will be accepted in the Hamina LNG Terminal without further testing under this Ship/Shore Compatibility Procedure for the 5 year approval period
- incompatible, and not accepted in the Hamina LNG Terminal without the successful completion of a new vessel approval procedure by the Terminal User / Vessel Owner for that Vessel.

If the Vessel is compatible and fully approved (Final Approval), the Terminal Operator will send a Final Approval Certificate to the Terminal User / Vessel Owner.

8.6 Section F, Previously Approved Vessels

All previously approved Vessels will undergo a SSCS renewal process every 5 years and/or upon changes to the Terminal or the Vessel. If major changes have been made to the Vessel or the Terminal, the Terminal Operator reserves the right to execute an SSCS process based on the procedure applicable to new vessels.

9 Approval Follow-up

Before and during any call at the Terminal, the Terminal User shall provide immediate assistance to the Terminal Operator to clarify and/or resolve any urgent issues that may arise before or during the call of an LNG carrier or LNG-powered vessel of that Terminal User.

Terminal User's immediate assistance should preferably be implemented by notifying the Terminal Operator in advance of each call of the Terminal User's representative for that particular call. The Terminal User shall provide the Terminal Operator with all necessary and relevant detailed information on how the Terminal Operator can contact the Terminal User's representative by telephone, mobile phone, email, etc. This Terminal User's representative shall be present before and during the Vessel's call, and be empowered to make all necessary *ad hoc* operational decisions on behalf of the Terminal User.

Any approval or finding of compatibility is based upon the Vessel's condition and properties at the time of the approval or finding, as they appeared from the information provided. If at any time during the approval period any modifications are made to the Vessel, or any changes, events or Deficiencies in its condition or maintenance status related to technical, safety and/or managerial issues arise, the Terminal Operator shall be notified as soon as practical.

Based on these modifications, the Terminal Operator assesses whether the Vessel requires a new approval.

10 Annexes

10.1 Annex 1, SSCS checklist / SSCS checklist (bunkering)

10.2 Annex 2, SSSCL, ISGOTT, Ship-Shore Safety Checklist

10.3 Annex 3, Unloading procedure

10.4 Annex 4, Loading procedure

10.5 Annex 5, Bunkering procedure

10.6 Annex 6, Compatibility letter

Compatibility letter **Date: __/__/20__**

Vessel:

Company:

Address:

Compatibility/Approval Item	Satisfactory / Unsatisfactory	Remarks
1. General Port Informations		
2. Vessel Limitations		
3. Manifold Arrangement		
4. Fender / Flat Body		
4.1 Optimooring		
5. Unloading Arm / Pumps		
6. ESD / System		
6.*1 Primary ESD*		
6.2 Secondary ESD		
7. Gangway		
8. Other		
SIRE/VPQ (max12 months)		
CAP (LNGC's >15 years)		
Class Status		
P&I Club Entry		
Final Vessel Approval*		* See Note

*Final Vessel Approval will only be issued following a safety check and any ship inspections on arrival at the Hamina LNG terminal and subject to satisfactory completion of jetty operations tests.

The Port regulations as well as the general instructions and guidelines of the Port must be followed within the Port areas in order to ensure safe and fluent operations and traffic in the Port area. Enterprises operating within the Port provide their own instructions for their own areas. General instructions (haminakotka.com)

Signature:_____/