

*Unofficial translation of the*  
**REGULATION FOR LNG BUNKERING TO PASSENGER SHIPS**  
**IN THE PORT OF LA SPEZIA**

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# **TITLE I**

## **GENERALITY**

### **Article 1**

#### **Field of application**

This regulation applies to LNG bunkering/refueling operations in the commercial port of La Spezia which can be carried out exclusively by LNG bunker vessels (henceforth "barge"), as the refueling with road tankers is not allowed and a shore terminal for the transfer of LNG fuel to ships does not exist.

The refueling of LNG, as fuel for ships, can only be carried out within the first basin of the commercial port of La Spezia - included in the waters delimited by "Calata Paita", "Calata Malaspina" and "Molo Garibaldi" – to passenger ships moored on the docks therein.

### **Article 2**

#### **Definitions**

For the purposes of this regulation, the definition of the following terms is:

- liquefied natural gas (LNG), natural gas in the liquid state at a temperature lower than or equal to the boiling temperature at a pressure close to 101,325 KPa (kiloPascal);
- biomethane, gas obtained from renewable sources with characteristics and conditions of use corresponding to those of methane gas and suitable for being injected into the natural gas network, as defined in Article 2 of the Legislative Decree 3 March 2011, n. 28;
- Kv, coefficient that defines the water flow between 5° and 40° C, expressed in m<sup>3</sup>/h, passing through a valve with a differential pressure - pressure drop - of 1 bar;
- barge, an LNG bunker vessels designed, certified and maintained in accordance with the IGC Code and/or the relevant additional or different rules and regulations applicable to it;
- emergency shut-down (ESD) systems, a set of automatic devices - compliant with the provisions of the IGF Code - which interrupt the supply of LNG by appropriately shutting the supply lines in case of emergency;
- emergency shutdown link (ESL), a system which guarantees a safe connection which allows a quick and controlled stop in emergency situations and the equipotential connection between ships;
- emergency release system (ERS), a set of automatic devices - compliant with the provisions of the IGF Code - able to disconnect the hoses for LNG refueling ensuring safe isolation between the barge and the supplied vessel;

- compatibility of bunkering operations, namely the ability of the refueling unit, the barge, to be alongside the unit to be refueled while guaranteeing the safety of the mooring, the connection and disconnection of the LNG and vapor lines, the readiness of communications between the ships, the transfer of crew members (where necessary), the functionality of the emergency shut-down systems (ESD);
- boil off of LNG (BOG), evaporation or rather regasification of liquefied natural gas;
- vapor return line, a connection line between the supply ship (barge) and the supplied ship, which allows the excess vapor generated during LNG bunkering operations to be sent back to the supply ship, thus avoiding to released it into the atmosphere. This system allows to control the pressure in the LNG receiving tank on board the refueled vessel, caused by the transfer of liquid and the generation of flash vapor and evaporation gas;
- LNG transfer system, a system consisting of all equipment between the manifold used to supply LNG and to manage the return of vapor and the manifold used for receiving the LNG and introducing the return vapor, including, such as:
  - BOG management plants;
  - nitrogen (N<sup>2</sup>) production plants;
  - communication systems;
  - data transmission systems;
  - loading arms of on-board davits and support structures;
  - fixed lines for LNG;
  - ERC systems;
  - insulation flanges;
  - quick connection / disconnection systems;
  - ESD systems.
- dry cryogenic couplings, intended as a "tank" unit which is a type of non-return valve and a "hose" unit with a valve activated by an internal cam curve to open both valves at the same time;
- bunkering operations, including the mooring operations of the barge, the coupling of LNG refueling and vapor lines, their cooling, the transfer of LNG from the barge to the supplied vessel, the drainage of the lines and their purging, the disconnection of the LNG refueling and vapor lines and the unmooring of the barge;
- dangerous zone, the three-dimensional space close to the safety valves of the LNG system where there could be an inflammable atmosphere at any time;
- safety zone, a three-dimensional space around the LNG transfer system determined by the result of a leak or an emergency discharge of LNG or return vapors, existing only during LNG bunkering operations;

- monitoring and security zone, a larger area that extends beyond the safety zone and is set up to monitor ship traffic and other activities that could pose a threat while bunkering;
- simultaneous operations (SIMOPS), two or more operations taking place simultaneously, one of which involves LNG bunkering operations, and the combination of which could lead to safety, environmental or security issues;
- Recognized Body, a body referred to in the legislative decree 14 June 2011, n. 104, as amended, transposition of the directive 2009/15/CE.

Although not expressly reported in this article, reference is made to the definitions referred to in EMSA “*Guidance on LNG Bunkering to Port Authorities and Administrations*” dated 31 January 2018. For anything not included in the following Regulations, reference is made to the IGC and IGF codes.

### **Article 3** **LNG refueling operations**

Liquefied Natural Gas (LNG) refueling operations are permitted using natural gas in the liquid state at a temperature lower than or equal to the boiling temperature at a pressure close to 101,325 kPa and liquid biomethane.

### **Article 4** **Companies authorized for refueling**

LNG refueling operations by barge in the port of La Spezia are reserved for companies in possession of a concession issued by the Harbour Master of La Spezia pursuant to Article 66 of the Navigation Code and Article 60 of the Implementing Regulations to the Navigation Code - maritime part.

### **Article 5** **Supply ship (barge) requirements**

In order to be authorized to carry out LNG bunkering operations in the port of La Spezia, the company must prove of being the owner of a barge complying, among other things, with the following prescriptions:

- to be designed, built and certified in accordance with the IGC Code, as amended. Furthermore, taking into account the service performed, the additional class notation “GAS BUNKER”, “LNG BUNKER VESSEL” or equivalent, must be indicated in the class certificate issued by a classification society member to the IACS association. Alternatively a ship, compliant with the IGC code but built before the release date of the additional Class Notation “GAS BUNKER” or “LNG BUNKER VESSEL” or similar, can be considered suitable if provided

with the Attestation of Fitness (covering the transfer system and the BOG management system related to bunkering) which confirms the eligibility of the ship to operate as an LNG bunker ship. The ship must be seaworthy without operational restrictions that prevent the ship from going out to sea if necessary;

- the maritime personnel responsible for specific safety duties related to the care, the use of gas as an on-board fuel or for interventions in case of emergency, must own a basic training certificate for working on board, in accordance with the provisions of Rule V / 1-2.1 of the STCW Convention;
- the Captain, the engine officers and anyone else who has direct responsibility for the care and use of gas as fuel and of the related bunkering systems must own an advanced training certificate for working on board, in accordance with the provisions of Rule V / 1-2.2 of the STCW Convention;
- the barge and its related management company, must have implemented a security system compliant with the requirements of the ISM Code, referred to in Chapter IX of the SOLAS Convention, as amended, or with the Regulation (CE) N. 336/2006 of the European Parliament and the Council of 15 February 2006 – as applicable;
- to determine the compatibility of bunkering operations with the ship to be refueled, it is necessary to carry out in advance a compatibility study of the bunkering operations which, by sharing information, plans and diagrams of the respective ships, can assess and confirm the existence of the compatibility conditions. The compatibility study and related assessments must be documented in the risk assessment referred to in Article 7.

## **Article 6**

### **Requirements of the ship to be refueled**

In order to be refueled with LNG in the port of La Spezia, the ship must ensure compliance with the following minimum standards during each bunkering operation:

- to be designed and certified in compliance with the IGF Code. In this regard, the ship must be in possession of a passenger ship safety certificate issued under the SOLAS Convention, as amended, specifying at section 2.2 that the ship complies with the provisions of rule 57 part G of Chapter II-1 (Code IGF), using natural gas fuel. Ships with a keel laying prior to 1<sup>st</sup> January 2017 must demonstrate compliance with the provisions of the Resolution MSC 285(86) by means of appropriate certification;
- all maritime personnel on board must have received appropriate and specific familiarization with the ship and her characteristics, equipment, installations, and with pertinent and relevant procedures, in relation to their duties and responsibilities under normal and emergency conditions as specified in Rule V/3.3 of the Convention STCW;

- the maritime personnel responsible for specific safety duties related to the care, the use of gas as an on-board fuel or for interventions in emergency case must be in possession of the basic training certificate for working on board, in accordance with the provisions of the Rule V/3.6 of the Convention STCW;
- the Captain, the engine officers and everyone else with direct responsibility for the care and use of gas as a fuel and related bunkering systems must be in possession of an advanced training certificate for working on board, in accordance with the provisions of the Rule V/3.7 of the Convention STCW;
- to determine the compatibility of bunkering operations with the barge, it is necessary to carry out in advance a compatibility study of the bunkering operations which, by sharing information, plans and diagrams of the respective ships, can assess and confirm the existence of the compatibility conditions. The compatibility study and related assessments must be documented in the risk assessment referred to in Article 7.

## **Article 7**

### **Risk assessment**

The risk assessment of LNG bunkering operations with barge in the port of La Spezia must be carried out in accordance with the provisions of the Standards ISO 18683:2015 and ISO 20519:2017 and structured as indicated in the ISO 31000:2018 using the scheme in Annex A.

The models used for risk analysis must be recognized and validated.

The aim of the risk assessment of LNG bunkering operations with barge in the port of La Spezia is to:

- demonstrate that the risks to people and the environment have been eliminated, if possible, and that in the event of residual risks these have been mitigated as necessary;
- provide indications to determine the dangerous zones, the safety zone and security zone around the area where LNG bunkering operations are carried out.

In order to comply with the above, the risk assessment process must take into account, at least:

- the arrival in the port of La Spezia, the approach and mooring alongside the ship to be refueled;
- the use of any spacers between the two units;
- the preparation, testing and connection of equipment;
- the transfer of LNG and the management of the boil-off gas (BOG);
- the dangerous zone, the safety zone, and the sea side of the monitoring and security zone;
- the completion of the refueling and disconnection of equipment;
- the concurrency of operations (SIMOPS) in the port of La Spezia.

Within the evaluation process, it is necessary to consider the Hazard Identification (HazID), the Hazard and Operability analysis (HazOP) and the Failure Mode and Effect Analysis (FMEA). The probability of failure and the probability of occurrence of accident scenarios must be evaluated respectively by means of Fault Tree Analysis (FTA) and Event Tree Analysis (ETA).

LNG bunkering operations, involving simultaneous operations as referred to in Article 8, require the adoption of a risk assessment which, by using the methods described in the previous paragraph, must be carried out employing the Quantitative Risk Assessment (QRA), in addition to the Qualitative Risk Assessment (QualRA).

The risk assessment of the consequences of the accident scenarios identified through the above methodology must be carried out using suitable mathematical models based on CFD simulations / suitable software, thus providing the possibility of comparing the frequencies and consequences of each expected incident scenario included in the computerized model, so that they can be calculated and compared with each other to determine the overall risk.

The risk assessment must be conducted specifically for the barge and the ship to be refueled.

In parallel, the port facility concerned must produce its own risk assessment integrated into its general risk assessment document.

The overall risk assessment (envelope areas of damage with relative frequencies, calculated with “*risk based*” or “*consequence based*” approach) must demonstrate that the overall final risk is acceptable. The overall risk assessment, so determined, must be forwarded to a Body Recognized by the Italian Administration to assess its consistency, at least 30 (thirty) days before the planned LNG bunkering date. The Body Recognized by the Italian Administration that carries out the risk assessment cannot be tasked with the subsequent consistency assessment, which must necessarily be assigned to another Recognized Body operating in the name and on behalf of the Italian Administration.

The risk assessment must identify the dangerous zones, the safety zone and the monitoring and security zone, as defined in previous article 2.

The safety zone, determined on the basis of the results of the risk assessment, cannot in any case extend, on the sea side, of less than 25 meters from the LNG bunkering piping and pumping systems and the boundaries of the bunkering stations.

The monitoring and security zone must be defined in such a way that no unexpected mechanical impact affects the ship, the LNG bunkering plant and the transfer system during bunkering operations.

## **Article 8**

### **Identification of simultaneous operations allowed (SIMOPS)**

When it is proposed to perform LNG bunkering operations in conjunction with other operations that could have an impact on the former, a risk assessment must be conducted to demonstrate that the

required level of safety – or rather the risk – falls within the limits of acceptability for all the parts involved, by using also the quantitative risk assessment (QRA) in accordance with the standard ISO/TS 18683:2015, as amended.

All operations concurrent with LNG bunkering operations are named “simultaneous operations” (SIMOPS).

The simultaneous operations (SIMOPS) must be documented and can only be permitted if considered admissible by the risk assessment outcome.

The risk assessment in case of simultaneous operations must take into account the concomitance of the bunkering operations with the following activities:

- any ship ballasting operations;
- passenger embarkation and disembarkation;
- loading of supplies;
- use of chemicals on board the ship to be refueled;
- handling of other products with a low flash point;
- supply of lubricating oils and fuel other than LNG.

The risk assessment for the admissibility of simultaneous operations must take into account the aforementioned activities and any other operations with potential interaction with the LNG system or operations.

The admissibility of simultaneous operations is subject to authorization from the Harbour Master which, at least 48 hours in advance, must receive the results of the risk assessments of the barge, of the ship to be refueled and of the port facility, together with parts B and F of the checklist in Annex D attached to these Regulations duly signed by the persons in charge of the refueling operations (PIR) referred to in Article 10 and by the terminal manager.

The permission for simultaneous operations during LNG bunkering with barge, issued with the authorization referred to in article 9 below and the facsimile of which is shown in Annex C, will focus on the results deriving from the process of determining the consistency of the risk assessment by a Body Recognized by the Italian Administration referred to in Article 7 above.

Without prejudice to the need for a preventive quantitative risk assessment (QRA), the simultaneous operations in the port of La Spezia are those shown in table 1 below.

| Simultaneous operation type            | Compatibility with loading of LNG from barge | Conditions                                                                                                                              |
|----------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>SERVICES TO THE SHIP</b>            |                                              |                                                                                                                                         |
| <b>REFUELING</b>                       |                                              |                                                                                                                                         |
| Supply of other fuel on the shore side | Conditioned                                  | The person in charge of the operations of the refueled vessel cannot coincide with the person in charge of the LNG bunkering operations |
| Supply of other fuel on the sea side   | Not permitted                                |                                                                                                                                         |



| <b>STOCKS AND WASTE</b>                                                                                   |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply of stocks on the shore side                                                                        | Permitted     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sludge / exhausted oil unloading operations on the sea side (MARPOL ANN. I)                               | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sludge / exhausted oil unloading operations on the shore side (MARPOL ANN. I)                             | Conditioned   | The person in charge of unloading operations from the ship cannot coincide with the person in charge of the LNG bunkering operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Sewage unloading operations on the sea side (MARPOL ANN. IV)                                              | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sewage unloading operations on the shore side (MARPOL ANN. IV)                                            | Conditioned   | The person in charge of unloading operations from the ship cannot coincide with the person in charge of the LNG bunkering operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Garbage unloading operations on the sea side (MARPOL ANN. V)                                              | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Garbage unloading operations on the shore side (MARPOL ANN. V)                                            | Conditioned   | The person in charge of unloading operations from the ship cannot coincide with the person in charge of the LNG bunkering operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Loading of drinking and fresh water on the sea side                                                       | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Loading of drinking and fresh water on the shore side                                                     | Conditioned   | The person in charge of unloading operations from the ship cannot coincide with the person in charge of the LNG bunkering operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>WORKS / MAINTENANCE / EXERCISES</b>                                                                    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Maintenance operations of the ship to be refueled                                                         | Conditioned   | <ul style="list-style-type: none"> <li>- Prohibition to carry out hot work or other operations that could be sources of ignition within a radius of within 100 meters from the LNG embarkation point.</li> <li>- Prohibition to carry out works that could make the essential services of the ship unusable (such as fire detection systems, fire pumps, video surveillance systems, alarms etc.).</li> <li>- Prohibition to carry out maintenance work within the safety zone during LNG bunkering operations.</li> </ul> <p>The person in charge of maintenance operations on the refueled ship cannot coincide with the person in charge of the LNG bunkering operations</p> |
| Hot work and / or with use of flame                                                                       | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Underwater cleaning operations                                                                            | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Maintenance / movement / outreach operations of rescue boats of the ship to be refueled on the shore side | Not permitted |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Safety drills                                                                                             | Conditioned   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MES (Marine Evacuation System) operations                                                                 | Conditioned   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                                                                                    |               |                                                      |
|----------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------|
| Operations for connection / disconnection of the shore power supply cables ( <i>cold ironing</i> ) | Not permitted |                                                      |
| Shore power supply operations ( <i>cold ironing</i> )                                              | Not permitted |                                                      |
| Ballasting operations                                                                              | Conditioned   |                                                      |
| <b>EMBARKATION AND DISEMBARKATION OF PASSENGERS / CREW MEMBERS AND LUGGAGE</b>                     |               |                                                      |
| Embarkation and disembarkation at the quay of passengers / crew members                            | Conditioned   | Providing quantitative risk assessment results (QRA) |
| Loading and unloading of luggage                                                                   | Permitted     |                                                      |
| <b>ACTIVITIES AT THE PORT FACILITY</b>                                                             |               |                                                      |
| Handling of boarding / disembarking gangways                                                       | Permitted     |                                                      |
| Movement of buses, trucks and motor vehicles on the quay                                           | Permitted     |                                                      |

During LNG bunkering operations, the movement of suspended loads above the safety zone identified around the ship's bunkering station is prohibited.

## TITLE II

### GENERAL RULES FOR CARRYING OUT LNG BUNKERING OPERATIONS

#### Article 9 Authorizations

In order to perform the LNG bunkering operations, the application in Annex B to this Regulation must be presented to the Harbour Master of La Spezia by the Captain or the owner of the barge or by the agent acting in the name and on behalf of the latter at least **48 hours** before the scheduled refueling operations, preferably through the PMIS system or, in alternative, by sending it to the following e-mail addresses: [tecnica.cplaspezia@mit.gov.it](mailto:tecnica.cplaspezia@mit.gov.it) - [nostromosp@gmail.com](mailto:nostromosp@gmail.com).

The application must be integrated with the following documentation:

- Parts A, B and F, duly completed and signed by the persons in charge of the refueling operations (PIR) referred to in Article 10 and by the terminal manager, of the check list in Annex D. The signing of the check list constitutes formal approval - to the full satisfaction of the parties - to the start of operations.
- a copy of the Type approval Certificate and the last annual check of each hose that will be used;
- the material safety data sheet (MSDS) of the product;

- a declaration by the Command of the ship to be supplied showing that the on-board reception system has been tested and brought to the correct operating temperature and is technically suitable and ready to receive LNG.

The Harbour Master of La Spezia, having evaluated the application, will be able to issue, if the conditions are met, the authorization in order with the stamp duty – in compliance with the model in annex C to this regulation – which must be delivered to the barge master by the shipping agent. Copy of the authorization, bearing the signature for acceptance by the barge master, must be returned, even by e-mail, to the Harbour Master of La Spezia, which will extend it to the Provincial Command of the Fire Brigade of La Spezia, for due knowledge and in order to plan activities related to possible emergency situations.

Whenever an authorization for LNG refueling is issued, the Harbour Master of La Spezia will promptly notify the local Prefecture – UTG, the Municipality, the Police Headquarters, the Customs Agency, the Port System Authority of the Eastern Ligurian Sea and local Police Forces offices for any actions of competence.

The bunkering operations must in any case be preceded by the transmission to the aforementioned e-mail addresses of the parts C and D of the check list in Annex D duly completed and signed and by the previous authorization from the Operations Room/VTs Service of the Harbour Master of La Spezia upon request made via radio on VHF Channel 74 by the Barge Captain, who must communicate:

- name of the barge and IMO number;
- name of the supplied unit and IMO number;
- Authorization from the Harbour Master (number / date);
- berth where the refueling will take place;
- refueling start time;
- LNG quantity in cubic meters that will be transferred to the refueled ship;
- identification of the persons in charge of the refueling operations (PIR) and methods for contacting them during all phases of bunkering operations;
- identification of the ship's Captain and contact points;
- confirmation of the subscription and sharing of the checklist in Annex D.

If there are some parts of the check list not filled or any discrepancy between its parts, the refueling operations cannot start. In this case, the Operations Room/VTs Service of the Harbour Master of La Spezia must be informed via VHF Channel 74, which will express its further consent to the start of operations only once the checklist has been completed and the discrepancies have been resolved. In the event of situations potentially capable of making the maneuverability of the barge and the supplied vessel difficult or impeding it, or that may constitute a threat or risk for the safety of navigation, for the safety in the workplace, or that may represent a danger for the prevention of

pollution of the marine environment or for the maritime security, the LNG refueling operations must be suspended immediately, promptly informing the Operations Room / VTS Service of the Harbour Master of La Spezia via VHF Channel 74.

Once the security checks have been carried out, and always upon request or indication of the vessel to be refueled, the supply of LNG can start.

To ensure the tightness of connections and lines, the LNG supply pressure must be gradually increased until it reaches the agreed value, without exceeding for any reason. When close to the final phases of filling a tank, the LNG supply pressure must be gradually reduced.

During all phases of LNG bunkering operations, the persons responsible for both ships will be in constant contact through the agreed communication systems. During the refueling operations, it is forbidden to smoke or to use naked flames, in accordance with the safety plans of the respective ships.

Once all refueling operations have been completed, the Part E of the check list in Annex D duly completed and signed and the Bunker Delivery Note (BDN) must be sent to the Harbour Master aforementioned e-mail addresses.

In order to comply with the restrictions on ship traffic during bunkering operations referred to in article 14 below, the authorization will be implemented in the daily docking commission for determining service and naval movements in the port area. Within such commission, the Maritime Authority evaluates on a case-by-case basis the eventual use of a tugboat in the mooring and/or unmooring phases of the units concerned.

## **Article 10**

### **Roles and responsibilities during LNG bunkering operations**

LNG bunkering operations in the port of La Spezia requires the identification of the persons in charge of refueling operations (PIR).

The people in charge of the refueling operations (henceforth PIR) are identified with the officers appointed for this purpose by their respective Captain of the barge and of the ship to be refueled, in possession of adequate certification, education and training for the LNG use. They are responsible for maintaining direct and continuous contact with the Captain and the technical staff on board the barge and the vessel to be refueled, ensuring that bunkering operations take place in absolute safety.

The persons responsible for the refueling operations must also:

- organize the meeting prior to the LNG refueling phases and document the related verification by filling in the check list, each one for their competent part;
- ensure communications and coordinate operations between the barge and the vessel to be refueled;
- establish, verify and ensure that security measures are put in place which include the determination of security zones;

- ensure, to the extent of their respective competence, that the barge is duly moored alongside the vessel to be refueled, with an adequate number of cables and duly tensioned, before starting bunkering operations;
- check that the LNG transfer system is in perfect condition and that the emergency stop systems (ESD) are correctly connected and tested, both by the barge and the vessel to be refueled;
- check the correct connection/disconnection of the Emergency Shutdown Link (ESL), of the LNG refueling hoses, in liquid and gas phase, of the inerting system and the correct connection of the ESD/ERS systems;
- check the condition of the hoses, pipes, hoses support and connectors;
- monitor LNG transfer operations and vapor management;
- ensure that adequate protective equipment is available to ensure the safety of LNG bunkering operations;
- coordinate to order the start of the LNG transfer operations;
- coordinate to determine the LNG transfer rate (or the pressure level);
- coordinate to order the stop of the LNG transfer operations, when necessary;
- implement the respective emergency procedures, giving the appropriate orders to the technical staff responsible for disconnecting the hoses, informing the Captain of the barge and of the refueled ship, a representative of the concessionaire of the port mooring facility, following the procedures provided in the respective SMS systems;
- coordinate to order the termination of the LNG transfer operations.

## **Article 11**

### **Duties and qualifications of maritime personnel involved in LNG bunkering operations**

The personnel in charge of following the LNG bunkering operations, who must have been trained as required by the STCW Convention 78/95 as amended, must be dedicated exclusively and continuously to the supervision of the activities in question. In particular, the Captain of the supplied ship, or the Officers designated by the Captain, must deal exclusively with LNG bunkering operations, not being able to follow any other operation carried out simultaneously on board the ship. PIR will be responsible for checking that all connections on the hoses on board the barge and the refueled vessel are properly secured and that all safety measures considered in the documentation shared before the start of LNG bunkering operations and in the check list referred to in Annex D, duly signed by the parties, are in place.

## **Article 12**

### **Preventive phase of LNG bunkering operations**

The preventive phase of LNG bunkering operations, beginning at the end of the mooring operations of the barge, starts with the communication between the barge and the vessel to be refueled and ends with the physical connection of the barge bunkering line to the refueling station of the supplied ship.

The purpose of the preventive LNG bunkering phase is to prepare, in safety, the connection operations between the refueling system of the barge and the reception system of the ship to be refueled.

During the LNG bunkering preventive phase it must be ascertained that:

- a copy of the LNG refueling authorization issued by the Harbour Master of La Spezia is present on board;
- clearance has been received via radio from the Operations Room / VTS of La Spezia;
- checks and controls have been carried out with satisfactory results, according to the respective Bunker Management Plans on bunkering systems and related safety devices to ensure safe transfer of LNG during the bunkering phases;
- information on the LNG transfer rate, on the management of the boil-off gas (BOG) and on the loading limit has been shared between the barge and the vessel to be refueled.

During bunkering operations, the presence in the safety zone must be limited to on-board personnel only who must wear personal protective equipment (PPE) suitable and adequate for specific risks.

## **Article 13**

### **Conditions for carrying out LNG bunkering operations**

LNG bunkering operations can be carried out in the port areas referred to in previous article 1 exclusively during daylight hours.

LNG bunkering operations cannot start or must be stopped when weather or marine conditions exceed, or it is forecasted that in the time frame provided for refueling they may exceed, the maximum conditions indicated in the corresponding safety studies (risk assessment) submitted for the authorization request.

It is understood that the operations cannot in any case take place (or will have to stop if already started):

- in the presence of storm phenomena;
- with winds of more than 20 (twenty) knots, regardless of direction;
- with visibility of less than 200 (two hundred) meters;
- in the presence of exceptional tidal range higher than 1 (one) meter during the transfer of the product.

LNG bunkering operations cannot take place if:

- the barge, the vessel to be refueled or any spacers (e.g. pontoons) experience stability, buoyancy or over-immersion problems;
- the barge or the ship to be refueled is undergoing repairs, maintenance or checks that may make it impossible to use the propulsion engines and/or may affect the availability of safety systems and essential services on the vessels.

## **Article 14**

### **Ship traffic restrictions during bunkering operations**

For the purposes of the applicability of this regulation, LNG bunkering operations from barge will be authorized subject to prohibition of ships movements – arrivals, departures and movements on the quay - within the first basin of the commercial port of La Spezia included in the waters delimited by the port infrastructures named “Calata Paita”, “Calata Malaspina” and “Molo Garibaldi” and by the extremity of “Molo Garibaldi” – south end of “Calata Paita”. Within **100 meters (one hundred)** - sea side - centered on the interface point between the barge and the refueled ship, navigation will be forbidden to any naval unit through the issuing of a dedicated ordinance by the Harbour Master of La Spezia.

The naval units of the Coast Guard, of the Police Forces, of the Fire Brigade and other State Bodies are not subject to the provisions of this article, for their respective duties.

The barge Master will be responsible for ensuring that this limitation of ship traffic is respected; in case of entry of naval units into the interdicted sea area, he must promptly inform the Operations Room / VTS Service of the Harbour Master of La Spezia via VHF Channel 74 or by phone at 0187/2581222.

The power of the Harbour Master of La Spezia to extend the aforementioned interdiction range is reserved, as appropriate, when contingent situations, having potential repercussions on the safety of the operations in question, suggest adopting this precautionary measure.

## **Article 15**

### **Precautions to be taken in safety zone**

The safety zone must be identified in advance on the occasion of the LNG bunkering operations, taking into account the comparison and overlapping of the results of the risk assessment conducted by the barge, the supplied vessel and the concessionaire of the port facility where the vessel to be supplied is moored.

In determining the safety zone, as resulting from the risk assessment, reference must be made to what is reported in previous article 7.

The boundary of the safety zone, identified on the basis of the criteria mentioned above, must be clearly identified by the barge crew.

It must be ensured that all possible sources of ignition are eliminated in the hazardous zones and safety zone. In particular:

- respect of smoking ban. Both ships must ensure monitoring of the external areas between the two ships, to guarantee the prohibition of access to balconies and bridges exposed to the side involved in refueling operations, over its entire height and for a longitudinal extension equal to the length of the safety zone as resulting from the risk assessment, in any case not less than 25 meters from the piping and LNG bunkering systems and from the border of the LNG bunkering station;
- no presence of naked flames or incandescent objects;
- no introduction of lighters, matches, reactive substances, electronic cigarettes, etc.;
- no concomitant activities are carried out, including hot work. Before any cold mechanical work (e.g. flanging), the absence of explosiveness must be checked with an analyzer.
- no switch is maneuvered/operated, no circuit connected/disconnected, not intrinsically safe, prudently considering them all still energized;
- all electrical and electronic equipment, including telephones, UHF/VHF radio, earphones/headphones, computers and tablets, not meeting intrinsic safety ATEX or IECEx criteria (if ATEX: minimum classification 2G, minimum temperature class T1), will have to be properly disconnected. As regards two-way radio communication devices to be assigned to the fire brigade team, reference is to be made to Circular General Series n. 141/2018 of the General Command of Harbour Masters dated 10/05/2018. Even with ATEX or IECEx classified equipment, no batteries must be removed and no charging process for electrical and electronic devices must be in progress. Mechanical equipment (cranes and other work tools) must be Ex certified according to the ATEX Directive or the IECEx standard; an inventory of this type of equipment must be part of the LNG bunkering operations management plan.

In the safety zone, moreover, the masters of the barge and of the ship to be refueled and the concessionaire of the port facility where the ship to be supplied is moored, must:

- limit the access of the area to authorized personnel only, strictly necessary and functional to the bunkering operations, equipped with personal protective equipment (PPE) in compliance with the provisions of article 21 below;
- without prejudice to the provisions referred to in the third paragraph of previous article 14, verify that there are no naval units in the safety zone.



The masters of the barge and of the ship to be refueled must take joint measures to prevent any electricity transmission between the two ships and ensure that a single isolation flange is placed in the LNG transfer system and tested before the start of refueling operations. The insulation flange must be permanently fixed in the barge hose.

In case shore cables are used, necessarily protected by a certified safety switch, they must be positioned outside the danger and safety zone.

In the monitoring and security zone, it is to be ensured that no intentional external interference can adversely affect the safety of ships and of LNG bunkering operations.

During LNG bunkering operations, both the barge and the refueled ship must hoist ashore the international flag B (BRAVO) of the International Code of Signals of 1969, as amended.

## **Article 16**

### **Safety requirements during LNG bunkering operations**

The fire-fighting systems of the barge and the refueled ship must be constantly ready for use.

On both ships, the surveillance and emergency response teams for fire risk protection must be ready to intervene, equipped with personal protective equipment (PPE) suitable and adequate for the corresponding risks.

Communications between all parties involved in the LNG refueling process must be ensured through the use of at least two systems, using safe and reliable equipment, whose redundancy is to be guaranteed through duplication of equipment.

To ensure that communications are always active during LNG refueling operations, tests must be carried out with adequate frequency. In the event of operating problems in the communication systems, all LNG bunkering operations will be suspended immediately and can only be resumed when all communication equipment is restored.

## **Article 17**

### **Lines and hoses containing LNG**

For LNG bunkering operations, only double-wall type hoses, suitable for use, are permitted. The use of hoses other than double-walled ones is allowed, provided that they meet the requirements established by chapter 5 of the IGC Code, have been considered in the risk analyzes and are in compliance with the required annual checks.

## **Article 18**

### **Management of boiling gas (boil off) in LNG containment tanks**

The barge and the refueled ship must be equipped with adequate systems for managing the boiling gas (*boil off*).

## **Article 19**

### **Emissions in the atmosphere**

No gas emissions into the atmosphere exceeding the regulatory limits are permitted. The emissions necessary for the management of the safety of plants in emergency situations do not fall under the prohibitions of this article.

## **Article 20**

### **Personal protective equipment to be used during LNG bunkering operations**

During LNG bunkering operations, the personnel present and operating in the safety zone must wear suitable and adequate personal protective equipment (PPE), identified and provided by the employer - pursuant to the relevant conventional legislation and the specific provisions of the flag Administration on workplace safety – in order to protect against one or more risks that may threaten their safety or health at work and in particular those for protection against contact with very low temperature elements or in the event of accidental leakage of LNG.

The PPE used must comply with Regulation (EU) 2016/425 (published in the Official Journal of the European Union of 31 March 2016), or with the specific regulatory provisions on the subject provided by the flag Administration.

Each employer identifies the PPE, to be provided to the workers according to the risk assessment, identifying their necessary characteristics to be adequate for the risks present in the bunkering activity, taking into account any additional sources of risk represented by the PPE themselves.

In the case of simultaneous use of multiple PPE, these must be compatible with each other and must maintain, even during simultaneous use, their effectiveness against the corresponding risks.

### **TITLE III**

## **EMERGENCY PROCEDURES AND SHIP AT BERTH IN PORT**

### **Article 21**

#### **Emergency procedures**

In case of accidents or emergency situations during LNG refueling operations, or while the barge is at berth – regardless of whether it is engaged in bunkering operations or not – the person in charge of bunkering operations must contact the Operations Room / VTS Service of the Harbour Master of La Spezia, reporting the nature of the accident and / or the emergency situation that occurred, through:

- VHF Channel 74;
- telephone number 0187/2581222;
- public utility number 1530;
- single emergency number 112.

The procedures contained in the respective safety management systems (ISM) of the barge and the refueled ship and in the emergency plan in use at the port facility where the supplied ship is moored must also be implemented without any delay.

In order to deal with possible emergency situations related to LNG refueling operations in the port of La Spezia, the emergency plans of the ships involved and of the port facility must include management measures and risk mitigations, alarm systems and responses to emergency situations related to LNG bunkering operations. In particular:

- the refueled ship must implement procedures in her ISM system by providing scenarios associated with refueling operations and LNG use;
- the barge must implement procedures in her ISM system by providing scenarios associated with the refueling operations of another ship;
- the port facility must provide self-protection measures related to LNG refueling operations and procedures of connection with the provisions of the other emergency plans of the port.

### **Article 22**

#### **Supply ship at berth in port**

The anchor point I8 inside the harbor or the anchor point E9 outside will be ordinarily assigned to any barge requesting the possibility of berthing in the port of La Spezia without carrying out bunkering operations. In the case of an unloaded ship, an “*inert gas*” certificate must be shown in advance to the Harbour Master of La Spezia, issued by the local port chemical consultant certifying that all tanks and on-board lines are free of gas residues and inerted.

Where it is necessary to berth the barge on a quay, having acquired the prior consent of the concessionaire of the port facility, it must be insured:

- the rapid and safe access on board of the personnel and vehicles of the Fire Brigade and other representatives of the authorities of the port of La Spezia;
- the adequate implementation of security measures on the port facility, as applicable;
- the possession of an “inert gas” certificate issued by the local port chemical consultant before docking the barge at the assigned berth.



## Ministry of Infrastructure and Transport

Harbour Master of La Spezia

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### AUTHORIZATION N. \_\_/2020

The Harbour Master of La Spezia:

- SEEN** the application submitted on \_\_\_\_\_ by the Agent/the Captain of the ship to be refueled/the Owner of the ship to be refueled M/V \_\_\_\_\_ aimed at obtaining the authorization to refuel the abovementioned vessel with LNG by barge, supplemented by the declaration of the company \_\_\_\_\_;
- SEEN** own Ordinance n. 174/2020 dated 13/11/2020 concerning the approval of the "Regulation for LNG bunkering to passenger ships in the port of La Spezia";
- SEEN** the findings of the risk assessment of LNG bunkering operations with barge in the port of La Spezia, of the planned simultaneous operations (SIMOPS) and the related consistency assessment issued by a Body Recognized by the Italian Administration on \_\_\_\_\_;

### AUTHORIZES

The Master of the barge named "\_\_\_\_\_" IMO n. \_\_\_\_\_ G.T. \_\_\_\_\_ flag \_\_\_\_\_, to refuel the vessel named "\_\_\_\_\_" IMO n. \_\_\_\_\_ flag \_\_\_\_\_ with the quantity of \_\_\_\_\_ m<sup>3</sup> of LNG, at the port facility \_\_\_\_\_ located within the port of La Spezia, at \_\_\_\_\_ on \_\_\_\_\_ and with an estimated duration of the operation of \_\_\_\_\_ hours.

The LNG bunkering operations must take place within the framework and according to the conditions laid down in the abovementioned Regulation.

Simultaneous operations (SIMOPS) are authorized within the limits of the specific risk assessment and with due regard for its outcomes.

The signing of the check list in Annex D constitutes formal approval - to the full satisfaction of the parties - to the start of operations.

Each non-compliance – even partial – of these conditions will cause the lapse of this authorization, without prejudice to civil and criminal responsibilities.

After the notification and acceptance of the conditions of this authorization, the Master of the barge formally undertakes to comply with them and agrees – within the limits of his own powers of representation – to indemnify the Maritime Authority from any liability for damages to people and/or participants' or third-parties' properties arising from the operations mentioned in this authorization and even in case of the damages will not arise from the non-fulfilment with the requirements.

La Spezia, \_\_\_\_\_

**THE HARBOUR MASTER**

Notification and acceptance

La Spezia, \_\_\_\_\_

The Master of the barge \_\_\_\_\_