

# Activity 3 – Scrutiny and Development of Standards and Permits


## Sub-activity 3.2 – Regulatory Roadmap

0	For approval	10-07-14	CNC	22-07-14	LPF	13-11-14	EBA
C	Draft version	23-05-14	JMG	03-07-14	Partners		
B	Draft version	23-05-14	JMG	26-06-14	CNC		
A	Draft version	23-05-14	JMG	23-06-14	LPF		
REV.	DESCRIPTION	PREPARED BY		CHECKED BY		APPROVED BY	




**Co-financed by the European Union**  
Trans-European Transport Network (TEN-T)

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	<b>Project:</b> Flexible LNG bunkering value chain in the Spanish Mediterranean Coast (2012-ES-92034-S)	
	<b>Type of document:</b> Study	
	<b>Title:</b> Sub-activity 3.2 – Regulatory Roadmap	
	<b>Code:</b> BL-APC/FVP-3.2	<b>Revision:</b> 0

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## 1. Introduction

Working package 3 of the project “Flexible LNG bunkering value chain in the Spanish Mediterranean Coast” aims to study the aspects involved in the regulatory framework comprising concession contracts, authorizations and permits needed to be addressed.

This activity includes, on one side, a thorough scrutiny of the Regulations and Standards to be taken into account regionally, nationally and internationally (European standards and International standards), which has been covered in sub-activity 3.1, and, on the other side, a permitting assessment and road map of the permits to be obtained to develop the supply of LNG bunkering in the Spanish ports of the Mediterranean, developed in this document.

One of the main conclusions of sub-activity 3.1 was that there was **“a need for the development of a regulatory roadmap towards the complete implementation of the LNG bunkering supply in ports”**.

In order to achieve the results required, sub-activity 3.2 will focus on analysing the LNG bunkering process, from the vessel’s point of view and from the port’s point of view.

From the vessel’s side, a road map will be developed with actions, mandatory regulations and requirements, that ought to be carried out since the vessels leaves the shipyard up to commercial operations. This analysis will not only cover the LNG vessel required permits but the ones for its crew, for its shipowner and for its cargo.

From the port’s side, all the procedures and requirements needed to carry out the LNG bunker operation complying with Spanish and international regulations, and safety requirements, will be developed for the four ports under study in the Mediterranean coast of Spain.

This document will analyse the steps and develop a guideline that must be clear, evident and precise enough for anyone wishing to access Spanish LNG bunkering market, to have all the requirements at a glance.

The process will be ensured according to Spanish regulations, as all ports involved in the project are Spanish. Nevertheless European and international regulations will be taken into account, where applicable. Although guidelines are developed tailor-made for Spain, they can be easily adapted to any other European country.

## 2. Roadmap

### 2.1 Methodology

In order to achieve a complete guideline of the permits required to fulfil each of the vessel's operation, a step by step approach has been followed. Analysing the whole process, the main phases, where specific permits are due, are the following:

- a. Vessel to leave the shipyard
- b. Crew joining the vessel
- c. Port Calling
- d. Bunker operations

Now, each one of these phases will be screened to check out which are the regulations that affect them, and which the permits required

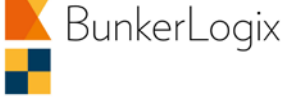
### 2.2 Vessel to leave the shipyard

While the vessel is being built in the shipyard, some permits are to be requested, certain documents are to be issued and certificates are to be obtained so the vessel is certified to navigate by the time the construction has been finished. It should be considered that, in addition, Port and Flag States might have more extended requirements, depending on where the vessel is flagged. International and Spanish certificates are shown here below.

Certificates are classified according to the regulations that make them mandatory:

<b>Certificates</b>	<b>Reference</b>	<b>Comments</b>
<b>1 SOLAS 74</b>		
<i>Cargo Ship Safety Construction Certificate</i>	Reg. I / 12	The Flag State may choose to have: A Cargo Ship Safety Certificate that may be issued under the provisions of the HSSC Regulations or the three Cargo Ship Safety Certificates
<i>Cargo Ship Safety Equipment Certificate</i>	Reg. I / 12	
<i>Cargo Ship Safety Radio Certificate</i>	Reg. I / 12	
<i>Cargo Ship Safety Certificate</i>	Protocol 88 Reg. I / 12	If the Flag State selected is Spain, the certificate is the Harmonized Ship Safety Certificate
<i>Minimum Safe Manning Document</i>	Reg. V / 14.2	If vessel > 500 GT
<i>Classification Certificate</i>	Chp 2.1. Reg. 3.1 Reg XI/1	
<i>International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk</i>	Reg. VII / 13 IGC Code Sec. 1.5.4.1	

<b>Certificates</b>	<b>Reference</b>	<b>Comments</b>
<i>Safety Management Certificate (ISM)</i>	Reg. IX / 4 ISM Code Reg. 13.7	If vessel > 500 GT
<i>Document of Compliance (ISM)</i>	Reg. IX / 4 ISM Code Reg. 13.2	If vessel > 500 GT
<i>International Ship Security Certificate</i>	Reg. XI-2/1.12 ISPS Code A/19.2	If vessel > 500 GT
<b>2 MARPOL 73 / 78 Annex I</b>		
<i>International Oil Pollution Prevention Certificate (IOPP Certificate)</i>	Reg. 7.1	If vessel > 400 GT
<b>3 MARPOL 73 / 78 Annex IV</b>		
<i>International Sewage Pollution Prevention Certificate</i>	Reg. 5	If vessel > 400 GT
<i>Result of calculation of moderate rate of discharge in accordance with MEPC.157(55) *</i>	Reg.11.1.1 Res. MEPC.164(56)	If vessel > 400 GT
<b>4 MARPOL 73 / 78 Annex VI</b>		
<i>International Air Pollution Prevention Certificate (IAPP)</i>	Reg. 6.1	If vessel > 400 GT Platforms and Drilling Rigs
<i>Engine International Air Pollution Prevention Certificate including Technical File and Record Book of Engine Parameters if applicable. (EIAPP)</i>	NO <sub>x</sub> Technical Code Reg. 2/2.3.4/2.4.1	Do not apply to Marine Diesel Engines < 130 KW
<i>International Energy Efficiency Certificate</i>	Reg.6.4	If vessel > 400 GT
<b>5 Load Line 1966</b>		
<i>International Load Line Certificate</i>	Art. 16, ILLC Protocol 88 Art. 18	If vessel > 24 m in Length
<i>International Load Line Exemption Certificate</i>	Art. 16	If vessel > 24 m in Length
<b>6 International Tonnage Convention 69</b>		
<i>International Tonnage Certificate</i>	Art. 7	If vessel > 24 m in Length
<b>7 International Convention on the Control of Harmful Anti-fouling Systems on Ships, AFS Convention</b>		
<i>International Anti-fouling System Certificate</i>	Annex 4 Reg. 2(1)	If Ship > 400 GT
<i>International Anti-fouling System Declaration</i>	Annex 4 Reg. 5(1)	If Ship > 24 m and < 400 GT
<b>8 STCW 1978 / 95</b>		
<i>Certificates for Masters, Officers and Ratings</i>	Art. VI, Reg. I/2, STCW Code A- I/2	Listed in the next section
<b>9 ILO Conventions</b>		
<i>Maritime Labour Certificate (MLC)</i>	MLC, 2006 Reg. 5.1.3	If Vessel > 500 GT

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<b>Certificates</b>	<b>Reference</b>	<b>Comments</b>
<i>Certificate of Compliance for ILO 92</i>	Accommodation of Crews (Revised)	If Vessel > 500 GT. Survey and issuance only if required by Flag State or wished by owners.
<i>Certificate of Compliance for ILO 133</i>	Accommodation of Crews (Supplementary Provisions)	If Vessel > 1 000 GT. Survey and issuance only if required by Flag State or wished by owners.
<i>Medical Certificate for ILO 73</i>	Fitness for Work Provisions	If Vessel > 200 GT. Survey and issuance only if required by Flag State or wished by owners.
<b>10 Liability Convention</b>		
<i>Certificate of Insurance in Respect of Civil Liability for Oil Pollution Damage</i>	Art. VII	Applies if carrying more than 2.000 Tons of Oil in Bulk as Cargo
<b>11 International Health Regulations (IHR)</b>		
<i>Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate</i>	Art 20, 27 39 and Annex 3 of IHR (2005)	
<b>12 International Telecommunication Union Conventions</b>		
<i>Radio Station License</i>	Ch. V Radio Reg. 18	Vessel's Radio Station
<b>13 Convention on the Law of the Sea</b>		
<i>Certificate of Registry</i>	Art. 91	
<b>14 Royal Decree 1027/1989, of 28 July, regulating flag, registration of ships and maritime registry.</b>		
<i>Seaworthiness Certificate</i>	Art. 25 & so on	Only applies if vessels are built in Spain.

**Table 1. Vessel required certificates**

*Certificates marked with (\*) have to be approved by the Administration or an authorized organization.*

Provided that the vessel has all certificates, some documents should be on board before the vessel first departure. These documents are listed below and classified according to the regulation that makes them compulsory:


<b>Documents</b>	<b>Reference</b>	<b>Comments</b>
<b>1 SOLAS 74</b>		
<b>Coating Technical File</b>	Reg. II-1/3-2	If vessel > 500 GT
<b>Emergency towing procedures</b>	Reg. II - 1/3-4.2	If vessel > 500 GT
<b>As-built construction drawings</b>	Reg. II - 1/3-7 MSC/Circ.1135	If vessel > 500 GT

Documents	Reference	Comments
<b>Noise Survey Report</b> <i>Expected to enter into force on 2014</i>	Reg. II - 1/3-12 Code on noise levels	If vessel > 1600 GT
<b>Deck Log-Book</b>	Reg. II – 1 /15.6.5, 15.9.4, 15.10.2, 17.3.3.2, 25.2, 25.9.4 and III /19.5 1994 + 2000 HSC Code para. 18.5.7	If vessel > 500 GT
<b>Intact Stability Booklet *</b>	Reg. II – 1 /5, 22, 25-8 ILLC Protocol 88, Reg.10	If vessel > 24 m
<b>Manoeuvring Information</b>	Reg. II – 1 / 28	If vessel > 500 GT
<b>Maintenance Plan/Programme</b>	Reg. II – 2 / 14.2.2	If vessel > 500 GT
<b>Training Manual</b>	Reg. II – 2 / 15.2.3	If vessel > 500 GT
<b>Fire Control and Safety Plan</b>	Reg. II – 2 / 15.2.4 1994 + 2000 HSC Code 7.9	If vessel > 500 GT
<b>Fire Safety Operational Booklet</b>	Reg. II – 2 / 16	If vessel > 500 GT
<b>Documentation Evaluation of the alternative design and arrangements * as applicable</b>	Reg. II – 2 / 17	If vessel > 500 GT
<b>Muster List</b>	Reg. III / 8, 37 1994 + 2000 HSC Code 8.4	If vessel > 500 GT
<b>Emergency Instructions</b>	Reg. III / 8 1994 + 2000 HSC Code 8.4	If vessel > 500 GT
<b>Ship-specific plans and procedures for recovery of persons from the water</b> <i>Expected to enter into force 2014</i>	Reg. III / 17-1 MSC.1/circ. 1447	All ships shall have ship-specific plans and procedures for recovery of persons from the water.
<b>Training Manual for Lifesaving Appliances</b>	Reg. III / 35 1994 + 2000 HSC Code 18.2.3	If vessel > 500 GT
<b>Instructions for on-board maintenance of life-saving appliances</b>	Reg. III / 36 1994 + 2000 HSC Code 8.9.2	If vessel > 500 GT
<b>Radio Record</b>	Reg. IV / 17 1994 HSC Code 14.16 2000 HSC Code 14.17	If vessel > 300 GT
<b>Voyage Data Recorder System-certificate of compliance</b>	Reg. V / 18.8 2000 HSC Code 13.16.2	If vessel > 300 GT
<b>AIS test report</b>	Reg. V /18.9 MSC.1/Circ.1252	If vessel > 300 GT
<b>Conformance test report (LRIT)</b>	Reg. V /19-1.6 MSC.1/Circ.1307	If vessel > 300 GT. For details on application refer to Resolution MSC.202(81)

Documents	Reference	Comments
International Code of Signals, up-to-date copy IAMSAR Manual, Volume III	Reg. V / 21	If vessel > 300 GT
Deviation Curve for Magnetic Compass	Reg. V / 19.2.1.3 1994 + 2000 HSC Code 13.2.3	If vessel > 315GT
Nautical Publications	Reg. V /19 + 27	
Material Safety Data Sheets (MSDS)	Reg. VI / 5-1	
Continuous Synopsis Record (CSR)	Reg. XI -1/5	If vessel > 500 GT
Ship Security Plan (SSP) *	ISPS Code A/9	If vessel > 500 GT
Copy of IBC Code	Reg. VII/8 IBC Code Reg. 16.2.1 IGC Code Sec. 1.5.4.3	Vessels carrying Dangerous Chemicals in Bulk, built on or after 1st July 1986
Copy of IGC Code	Reg. VII/11 IGC Code Reg. 18.1.3	Vessels carrying Liquefied Gases in Bulk, built on or after 1st July 1986
<b>2 MARPOL 73 / 78 Annex I</b>		
Oil Record Book, Part 1 (Machinery Space Operations)	Reg. 17.1, 36.1	If vessel > 400 GT
Shipboard Oil Pollution Emergency Plan *	Reg. 37	If vessel > 400 GT
Oil water separator (OWS)	Reg. 31 and Reg. 16	If vessel (tanker) > 150 GT
<b>3 MARPOL 73 / 78 Annex II</b>		
Procedure and Arrangement Manual *	Reg. 14 P&A Standard	
Cargo Record Book	Reg. 15	
Shipboard Marine Pollution Emergency Plan for Noxious Liquid Substances *	Reg. 17	If vessel > 150 GT
<b>4 MARPOL 73 / 78 Annex IV</b>		
Result of calculation of moderate rate of discharge in accordance with MEPC.157(55) *	Reg. 11.1.1 Res. MEPC.164(56)	If vessel > 400 GT
<b>5 MARPOL 73 / 78 Annex V</b>		
Garbage Management Plan	Reg. 9	If vessel > 400 GT
<i>Garbage Management Plan</i>	<i>Reg. 9</i>	If vessel > 100 GT
Garbage Record Book	Reg. 9	If vessel > 400 GT
<i>Garbage Record Book</i>	<i>Reg. 9</i>	If vessel > 400 GT



Documents	Reference	Comments
<b>5 MARPOL 73 / 78 Annex VI</b>		
List of equipment containing Ozone Depleting Substances Ozone Depleting Substances Record Book. (if ship is equipped with rechargeable system that contain ozone- depleting substances)	Reg. 12.5 Reg. 12.6	If vessel > 400 GT
Fuel Oil Changeover Procedure and Log-Book	Reg. 14.6	If vessel > 400 GT
Volatile Organic Compound (VOC) Management Plan *	Reg. 15.7 Res. MEPC.185(59), Guidelines for the Development of a VOC Management Plan	
Manufacturer's Operating Manual for Incinerators	Reg. 16.7	If vessel > 400 GT
Bunker Delivery Note and Representative Sample	Reg. 18.6 Reg. 18.8	If vessel > 400 GT
Records of the sulfur content of gas fuels loaded	Annex VI Reg. 19.4	If vessel > 400 GT
Ship Energy Efficiency Management Plan (SEEMP)	Reg. 22	If vessel > 400 GT
Energy Efficiency Design Index (EEDI) Technical file* If delivery date on or after 1-07-2015.	Reg. 20	If vessel > 400 GT Do not apply if ship has diesel-electric propulsion, turbine propulsion or hybrid propulsion systems
<b>6 International Convention on the Control of Harmful Anti-fouling Systems on Ships, AFS Convention</b>		
International Anti-fouling System Declaration	Annex 4 Reg. 5(1)	If vessel > 400 GT
<b>7 STCW 1978 / 95</b>		
Records of Hours of Rest	STCW Code A- VIII/1 MLC 2006	Seafarers serving on Board Merchant Vessels
<b>8 ILO Conventions</b>		
Declaration of Maritime Labour Compliance Part I (DMLC I) set up by Flag State Authority	MLC, 2006 Reg. 5.1.3	If vessel > 500 GT
Declaration of Maritime Labour Compliance Part II (DMLC II)	MLC, 2006 Reg. 5.1.3	If vessel > 500 GT
<b>9 International Telecommunication Union Conventions</b>		

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Documents	Reference	Comments
Radio Service Document	Ch. IX RR 51; App.16; Documents acc. to ITU RR 51.6 § 4 are covered by GL Form F441, page 3	Vessel's Radio Station

**Table 2. Certificates and documents to be on-board**

*Certificates marked with (\*) have to be approved by the Administration or an authorized organization.*

May these requirements and certificates be modified, or changed by new regulations. Special attention should be paid to the IGF Code<sup>1</sup>.

### 2.3 Crew training requirements

***The training of seafarers plays a major role in maritime safety and in the protection of the maritime environment. It is therefore essential to define a minimum level of training for seafarers in the Community having regard to training standards agreed at international level.***<sup>2</sup>

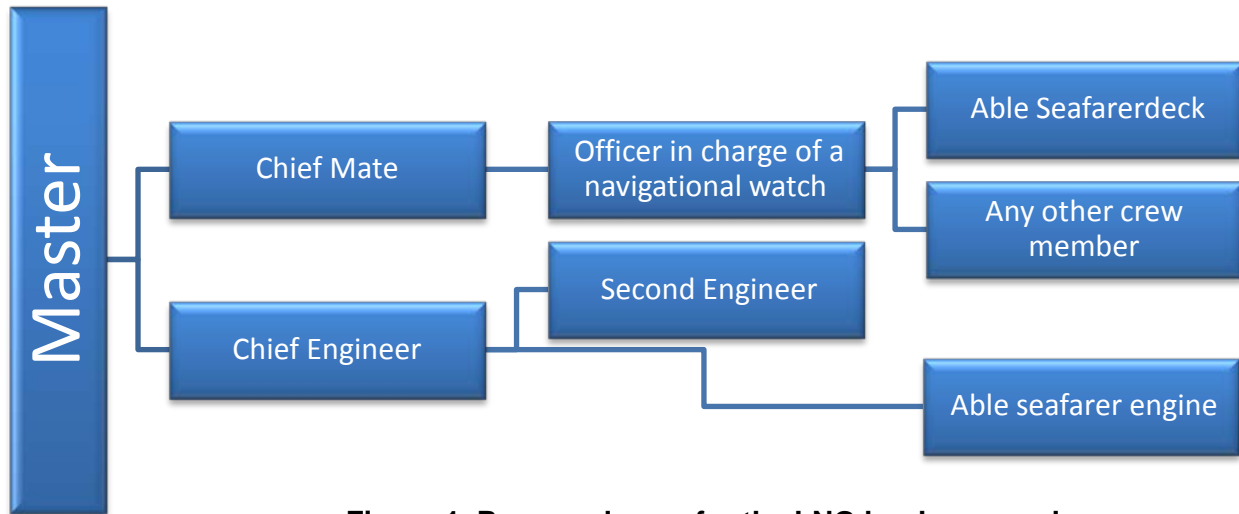
It is obvious that, as the Directive 2008/106/EC establishes, the role of the crew in a vessel is essential for safety, and the environment. The most comprehensive and world accepted training scheme is regulated by the 1978 International Convention on Training, Certification and Watchkeeping for Seafarers (STCW) that has been amended in Manila 2010.

According to the latest amendments of the STCW the minimum maritime education and training, length of service at sea, professional competence, medical fitness and age required for each one of the members of the crew for a new LNG bunker vessel are listed afterwards. Additional training might be required by National Maritime Authorities, and so it has been listed too, remarking its optional character.

Specifically and in order to complete this activity, a typical crew for a vessel, like the one it is to be designed within the project, has been outlined for two scenarios, the first one if the vessel is going to navigate, and the second one if it is going to operate in a single port, without navigating:

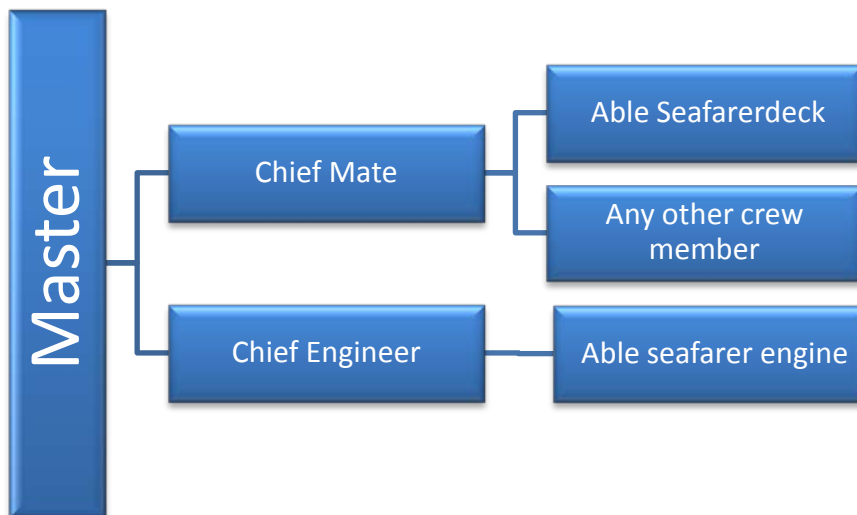
<sup>1</sup> The international code of safety for ships using gases or other low-flash point fuels is currently being developed by IMO, and it is about to enter into force.

<sup>2</sup> Directive 2008/106/EC of the European Parliament and of the Council of 3 December 2008 on the minimum level of training of seafarers



**Figure 1. Proposed crew for the LNG bunker vessel**

According to proposed crew, certificates and general requirements are listed here below by rank:



**Figure 2. Proposed crew for the LNG bunker vessel, if not navigating.**

### 2.3.1 Master

Name of Certificate	Revalidation (every 5 years)	Regulation	Notes
National certificate of competence and endorsement	Yes	I/2, II/2,	C/R
Flag State endorsement of recognition	Yes	I/10	E/R
Global Maritime Distress and Safety System	Yes	IV/2	C/R

<b>(GMDSS) endorsement</b>			
<b>Basic safety training</b>			
– Personal survival techniques	Achieved within previous five years	VI/1	D/P
– Fire prevention and fire fighting			
– Elementary first aid			
– Personal safety and social responsibility			
<b>Medical Care</b>	No	VI/4	D/P
<b>Survival craft and rescue boats</b>	Yes	VI/2	D/P
<b>Advanced firefighting</b>	Yes	VI/3	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarization</b>	On assignment	VI/1	T/O
<b>Ship specific familiarization</b>	On assignment	I/14	T/O
<b>Security familiarization</b>	On assignment	VI/6	T/O
<b>Fast rescue boat *</b>	No	VI/2	D/P
<b>Ship Security Officer *</b>	No	VI/5	D/P
<b>Security awareness *</b>	No	VI/6	D/P
<b>Automatic Radar Plotting Aid (ARPA) *</b>	No		D/P
<b>Basic training for officers on liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.1	C/R
<b>Advanced training for liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.2	C/R

**Table 3. Master's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required, \*Not mandatory by STCW.

### 2.3.2 Chief Mate

<i>Name of Certificate</i>	<i>Revalidation (every 5 years)</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence and endorsement</b>	Yes	I/2, II/2,	C/R
<b>Flag State endorsement of recognition</b>	Yes	I/10	E/R
<b>GMDSS endorsement</b>	Yes	IV/2	C/R

<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
<b>Medical care</b>	No	VI/4	D/P
<b>Survival craft and rescue boats</b>	Yes	VI/2	D/P
<b>Advanced fire fighting</b>	Yes	VI/3	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Fast rescue boat *</b>	No	VI/2	D/P
<b>Ship Security Officer *</b>	No	VI/5	D/P
<b>Security awareness *</b>	No	VI/6	D/P
<b>ARPA *</b>	No		D/P
<b>Basic training for officers on liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.1	C/R
<b>Advanced training for liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.2	C/R

**Table 4. Chief Mate's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

### 2.3.3 Officer in charge of a navigational watch

<i>Name of Certificate</i>	<i>Revalidation (every 5 years)</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence and endorsement</b>	Yes	I/2, II/1, II/3	C/R
<b>Flag State endorsement of recognition</b>	Yes	I/10	E/R
<b>GMDSS endorsement</b>	Yes	IV/2	C/R
<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P

<b>Medical first aid</b>	No	VI/4	D/P
<b>Survival craft and rescue boats</b>	Yes	VI/2	D/P
<b>Advanced firefighting</b>	Yes	VI/3	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Fast rescue boat *</b>	No	VI/2	D/P
<b>Ship Security Officer *</b>	No	VI/5	D/P
<b>Security awareness *</b>	No	VI/6	D/P
<b>ARPA *</b>	No		D/P
<b>Basic training for officers on liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.1	C/R
<b>Advanced training for liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.2	C/R

**Table 5. Navigational watch officer's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

#### 2.3.4 Able seafarer deck

<i>Name of Certificate</i>	<i>Revalidation (every 5 years)</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence</b>	No	I/2, II/5	C/R
<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Survival craft and rescue boats *</b>	Yes	VI/2	D/P
<b>Advanced firefighting *</b>	Yes	VI/3	D/P
<b>Medical first aid*</b>	No	VI/4	D/P
<b>Basic training on liquefied gas tankers *</b>	Yes	V/1-2,A-V/1-2.1	C/R

**Table 6. Able seafarer deck's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

### 2.3.5 Chief Engineer

<i>Name of Certificate</i>	<i>Revalidation</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence and endorsement</b>	Yes	I/2, III/2, III/3	C/R
<b>Flag State endorsement of recognition</b>	Yes	I/10	E/R
<b>Basic safety training</b>	Achieved within previous five years	VI/1	D/P
– Personal survival techniques			
– Fire prevention and fire fighting			
– Elementary first aid			
– Personal safety and social responsibility			
<b>Medical first aid</b>	No	VI/4	D/P
<b>Survival craft and rescue boats</b>	Yes	VI/2	D/P
<b>Advanced firefighting</b>	Yes	VI/3	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Fast rescue boat *</b>	No	VI/2	D/P
<b>Ship Security Officer *</b>	No	VI/5	D/P
<b>Security awareness *</b>	No	VI/6	D/P
<b>Basic training for officers on liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.1	C/R
<b>Advanced training for liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.2	C/R

**Table 7. Chief engineer's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

### 2.3.6 Second Engineer

<i>Name of Certificate</i>	<i>Revalidation (every 5 years)</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence and endorsement</b>	Yes	I/2, III/2, III/3	C/R
<b>Flag State endorsement of recognition</b>	Yes	I/10	E/R

<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
<b>Medical first aid</b>	No	VI/4	D/P
<b>Survival craft and rescue boats</b>	Yes	VI/2	D/P
<b>Advanced firefighting</b>	Yes	VI/3	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Fast rescue boat *</b>	No	VI/2	D/P
<b>Basic training for officers on liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.1	C/R
<b>Advanced training for liquefied gas tankers*</b>	Yes	V/1-2,A-V/1-2.2	C/R


**Table 8. Second engineer's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

### 2.3.7 Able seafarer engine

<i>Name of Certificate</i>	<i>Revalidation (every 5 years)</i>	<i>Regulation</i>	<i>Notes</i>
<b>National certificate of competence</b>	No	I/2, III/5	C/R
<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarization</b>	On assignment	VI/1	T/O
<b>Ship specific familiarization</b>	On assignment	I/14	T/O
<b>Security familiarization</b>	On assignment	VI/6	T/O
<b>Advanced firefighting *</b>	Yes	VI/3	D/P
<b>Medical first aid*</b>	No	VI/4	D/P
<b>Basic training on liquefied gas tankers *</b>	Yes	V/1-2,A-V/1-2.1	C/R



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**Table 9. Able seafarer engine's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

### 2.3.8 Any other crew member

Name of Certificate	Revalidation (every 5 years)	Regulation	Notes
<b>Basic safety training</b> – Personal survival techniques – Fire prevention and fire fighting – Elementary first aid – Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
<b>Medical fitness</b>	Yes	I/9	C/R
<b>Basic safety familiarisation</b>	On assignment	VI/1	T/O
<b>Ship specific familiarisation</b>	On assignment	I/14	T/O
<b>Security familiarisation</b>	On assignment	VI/6	T/O
<b>Advanced firefighting *</b>	Yes	VI/3	D/P
<b>Medical first aid*</b>	No	VI/4	D/P
<b>Basic training on liquefied gas tankers *</b>	Yes	V/1-2,A-V/1-2.1	C/R

**Table 10. Any other crew's requirements**

Notes: C/R certificate required. D/P Documentary proof. T/O Training on-board. E/R Endorsement required. \*Not mandatory by STCW.

In addition, and as part of the working package 2 of the project, a training design for the crew's vessel will be developed by DNV-GL.

All trainings have to be recorded in the personal "**Training record book**": This book is approved by the administration issuing the certificate and lists the specific tasks that should be completed by the student while at sea in order to demonstrate that competency has been achieved. All trainees must document their on-board training in a training record book.

## 2.4 Port call

### 2.4.1 Introduction

Analysed the requirements for the vessel to be ready to navigate, the proceedings to call in a port, to bunker LNG, and depart will be studied. This will include the following procedures:

#### - **Port Clearance**

Order FOM/1194/2011, of 29 April, regulates and establishes the “integrated procedure for ships calling in Spanish State ports” (PIDE), which integrates in a single procedure all procedures and documents that have to be completed by ship’s consignees to the Port Authority and the Maritime Captain to port calling request and dispatch of ships. Call number is used as a code to coordinate Port Authority and Harbour Master’s procedures (that number already coordinated customs and port administrations in customs goods procedures).

In addition, the purpose of the procedure is to join a neatly application for port calling procedures, allocation of docking, and dispatch of ships, as well as regular information and the management of the Port Calling Single document (DUE).

#### - **Hazardous Materials**

This procedure has two points of view. The first one is related to The International Convention for safety of life at sea, 1974, as amended by various Protocols, and its implementing rules called SOLAS, which regulates in its Chapter VII the carriage of dangerous goods by sea, the so called, international maritime dangerous goods (IMDG Code) code of IMO.

The second point of view has to be with the EU and its Directive 2009/17/EC of 23 April 2009, amending Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system.

#### - **Summary declaration. (Customs)**

Europe established a single market by adopting the Single European Act in 1986. Since that day customs regulations have been harmonized within the E.U. by several regulations like Regulation (EEC) No. 2913/1992 and (EEC) No. 2454/1993, in order to regulate import and export from or to third countries into the EU single market. These regulations are mainly applied at the ports, as they are the main door for goods exiting or entering the EU.

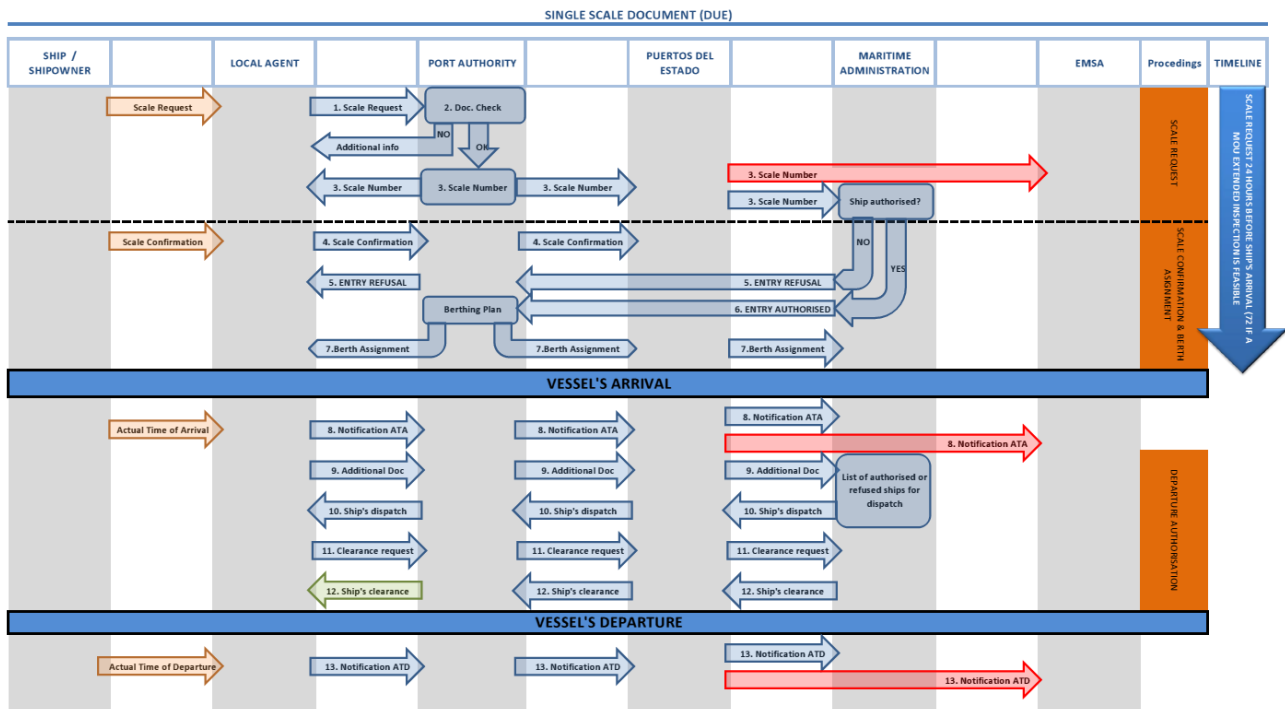
Additionally, before entering into the port, the vessel must wait for the Pilot to be on board, which is mandatory for vessels with a gross tonnage greater than 500 GT or carrying dangerous goods. In this sense, it also exists the option for the Master to obtain the Pilot Exemption Certificate (PEC).

#### 2.4.2 *Port Calling Single document (DUE)*

All proceedings regarding the Port Calling Single Document (DUE) have being digitalised therefore the process can be fully accomplished through a website:

[https://berman.portel.es/aplicaciones/Due\\_def/index.asp](https://berman.portel.es/aplicaciones/Due_def/index.asp)

The next scheme summarises all procedures that should be carried out (scheme in higher resolution is attached)




**Figure 3. DUE Notifications Scheme**

In order to complete the DUE procedures the following steps have to be fulfilled. Special requirements and comments have been made for most critical aspects.

MAIN STEPS	Special requirements or comments
<b>1. Calling Request</b>	To be done at least, 24 hours prior to arrival. 72 hours should be the case of an extended MOU Inspection <sup>3</sup> .
<b>2. Doc. Check</b>	The documents and information required are listed below.
<b>3. Scale Number</b>	
<b>4. Scale Confirmation</b>	See the list of documents below. Better to confirm at least 24 hours prior to arrival, to secure berth position.
<b>5. ENTRY REFUSAL</b>	
<b>6. ENTRY AUTHORISED</b>	
<b>7. Berth Assignment</b>	
<b>8. Notification ATA</b>	
<b>9. Additional Doc</b>	
<b>10. Ship's dispatch</b>	
<b>11. Clearance request</b>	Even though all documents were ready and ok, Maritime Administration would do additional inspections prior to the departure.
<b>12. Ship's clearance</b>	
<b>13. Notification ATD</b>	

<sup>3</sup> Regarding RD 1737/2010, de 23 de Diciembre de 2010, Annex III

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**Table 11. DUE Notifications**

Documents required so that step 2 can be accomplished are:


- Within the port calling request these data are compulsory:
  - Port which is going to call, and will process DUE.
  - Local Agent (name and tax ID)
  - Vessel (name, flag, number IMO, GT and LOA)
  - Date and estimated time of arrival (ETA)
  - Date and estimated time of departure (ETD)
  - Indication of whether transporting commercial cargo of heavy fuel, tar, bitumen asphalt or heavy crude oil (NO IN OUR STUDY CASE)
  - Technical details of the ship, distinctive or indicative of call signal, single-hull check, and single hull with SBT check (Y/N).
  - Vessel subjected to expanded MOU inspection (Y/N Depending on the Flag and the age of the vessel)

All the above mentioned data are not compulsory when:

- Sailing in harbour areas of the same port
- When the vessel comes back to the port in less than 24 hours from departure, even when she calls other ports
- When the Maritime Authority considers due to special conditions
- Regular shipping routes for costal trade, and also costal trade and consecutive costal trade when, even if she does not do regular routes, she does repetitive routes.
- If an extended MOU inspection applies (only for foreign-flagged vessels) these data are also compulsory :
  - Technical data of the ship: date and port of the last extended inspection MOU
  - Load information
  - Cargo tanks conditions (full, empty, inert)
  - Ballast tanks conditions (full, empty, inert)
  - Cargo Volume
  - Mandatory inspections and maintenance and/or planned repair

In order to have a port calling confirmation (Step 4), additional information should be sent.

- Shipping company.
- Previous port and next port.
- Indicator of affection to international navigation (Y/N).
- Name of the captain to the entrance.
- Number of crew members at the entrance.
- Indication if it takes or not passage at the entrance and number if so.
- Indication if it takes or not stowaways at the entrance and number if so.
- Information on dangerous goods. (To be explained in next point)
- Operation data (time and date of beginning and end of anchoring and/or berthing, maximum draught on arrival and on departure, activity).

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- Details of commercial operations (type of operation, cargo/bunkering, cargo type, quantity, stevedoring company, start and end date and time of loading and unloading operations).
- Information about protection. The basic information relevant to the ISPS will be necessary for the port authority to issue the confirmation of the scale.

To obtain ship’s dispatch (step 9), the following documents are mandatory:

- Crew list
- Waste Manifest

### 2.4.3 Hazardous materials (HAZMAT)

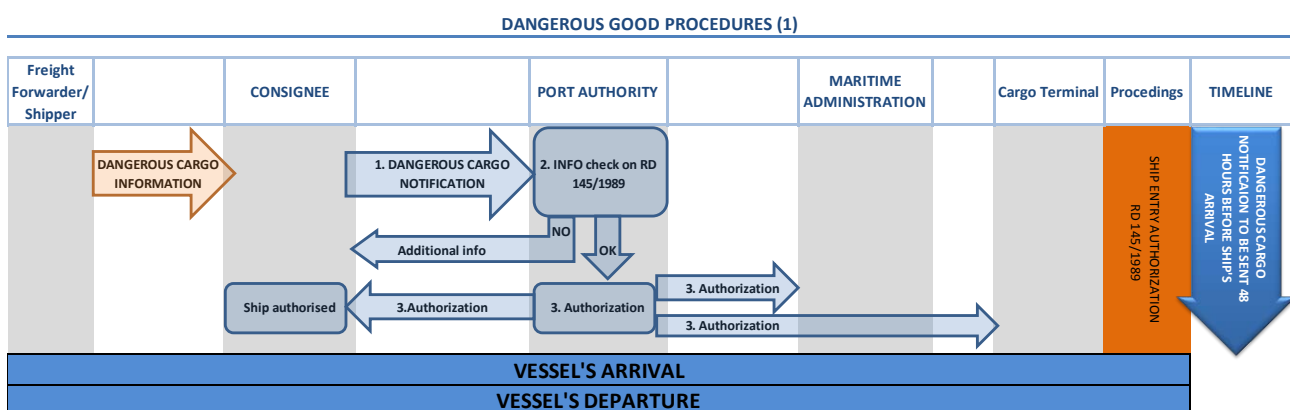
Information on dangerous goods has to be sent previous to the port calling, so that it can be confirmed and entry into Spanish national water can be approved. Spanish legislation about hazardous materials is basically sustained by two pillars:

- Royal Decree 145/1989, of 20 January. Approving regulation for admission, handling and storage of dangerous goods in ports.
- Royal Decree 1593/2010, of 24 of July, amending Royal Decree 210/2004 of 6 of February, which establishes a system of shipping tracking and information. This complies with COUNCIL DIRECTIVE 2002/59/CE of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC

All proceedings regarding the HAZMAT transport have been digitalised so the process can be fully accomplished through a website:

<https://servicios.portel.es/mercanciasp/>

The two schemes here under summarise all procedures that should be carried out. Each one is related to each legal requirement (schemes in higher resolution are attached):



**Figure 4. RD 145/1989 Procedures**

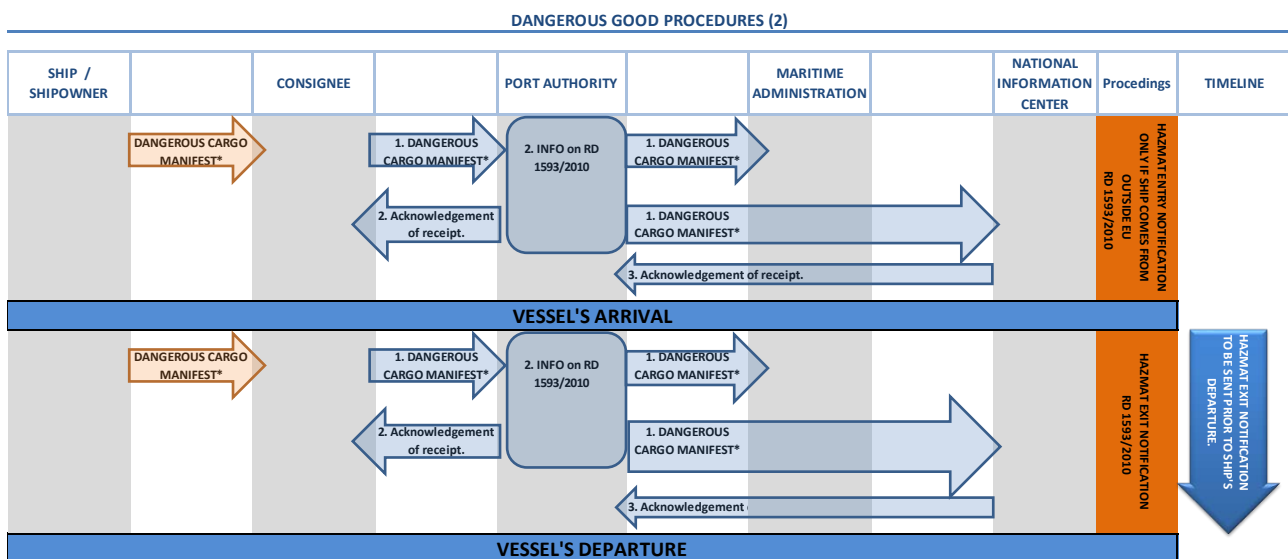
In order to complete the RD 145/1989 procedures the following steps have to be fulfilled, special requirements and comments have been made for the most critical aspects.

MAIN STEPS	Special requirements or comments
1. Dangerous cargo notification	Freight forwarder or consignor of the goods shall provide to the agent HAZMAT information: Dangerous cargo manifest and safety data sheet. With this information the agent generates a HAZMAT notification.
2. Doc. Check	
3. Authorization	Given by the Port Authority. Maritime Administration can check at any time the list of authorized HAZMAT in the port.

**Table 12. RD 145/1989. Notifications**


Within this procedure specific remarks should be pointed out:

- This procedure does not apply to bunker operations,( it applies in loading operations at the regasification plant)
- This procedure just applies to ships loaded with HAZMAT.
- Even though the ship is unloaded and inert this procedure has to be carried out, unless tanks are degasified.


**Figure 5. RD 1593/2010 Procedures**

In order to complete the RD 1593/2010 procedures the following steps have to be fulfilled before arrival and departure of the vessel. Steps are the same in both cases. Special requirements and comments have been made to the most critical aspects.

MAIN STEPS	Special requirements or comments
1. Dangerous cargo manifest	The documents and information required are listed below.
2. Acknowledgement of	Given by the Port Authority.

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receipt	
<b>3. Acknowledgement of receipt</b>	Given by the HAZMAT National information centre.

**Table 13. RD 1593/2010. Notifications**

Within this procedure specific remarks should be pointed out:

- Dangerous cargo manifest is only mandatory for vessels arriving from outside the EU, and always for vessels departing from a Spanish port.
- This procedure does not apply to bunker operations (it applies in loading operations at the regasification plant).
- This procedure just applies to ships loaded with HAZMAT.
- Even though the ship is unloaded and inert this procedure has to be carried out, unless tanks are degasified.

Information to be included in the dangerous cargo manifest:

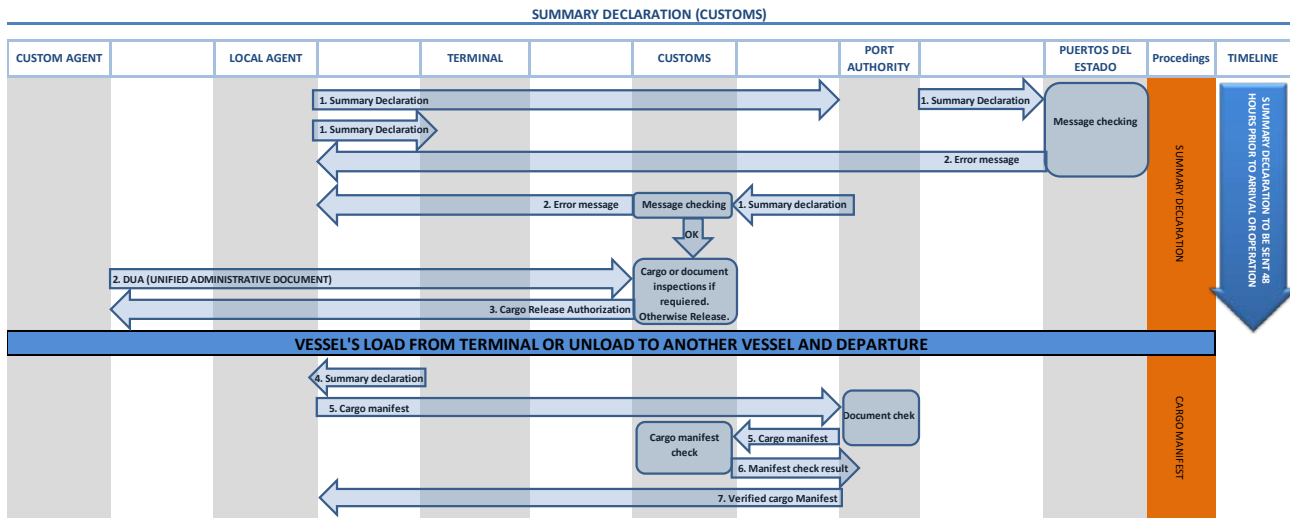
- Emergency phone number of the agent or any other person or body who possesses information on the physical & chemical characteristics of the products and the measures to be taken in case of emergency.
- Technical name of the dangerous materials, the UN numbers, if they may exist, preceded by the letters "UN".
- IMO risk categories according to the nomenclature of the IMDG, CIQ, and IGC Codes and, where appropriate, the class of the ship needed for CNI loads, as defined in rule 14.2 of Chapter VII of the SOLAS Convention.
- Quantity of dangerous goods.
- Address where detailed cargo information could be obtained.
- These data do not replace documentation that must be presented in accordance with the IMDG Code, if applicable.
- Any other relevant information, especially for the purposes of the decisions that may be taken in cases of emergency.

#### 2.4.4 Summary declaration (Customs)

Regulation (EEC) No. 2913/1992 of the Council of 12 October 1992, establishing the Community customs code and Regulation (EEC) No. 2454/1993 of the Commission of 2 July 1993, laying the provisions for the application of Regulation (EEC) No. 2913/92 of the Board, by which establishes the Community customs code, both regulate the import and export of goods from or to third countries into the customs territory of the EU.

These regulations establish the general framework for Summary declaration procedures. These procedures should be made through the specific “single window” of each Port Authority.

The following scheme summarises all procedures that should be developed (scheme in higher resolution is attached)



**Figure 6. Summary of declaration procedures**

## 2.5 Bunkering operations

Bunker operations, to be carried out within Port Authority water boundaries, are considered as a commercial service by the Royal Decree Legislative 2/2011 of the 5<sup>th</sup> September. So any company wishing to provide that kind of service just needs an authorization from the Port Authority and shall comply with Annex I “Particular conditions to perform LNG bunker operations” requirements.

This authorization shall be given prior to the first bunkering operation, according to Annex I of each one of the individual Port Authorities.

There are two different cases:

- If the LNG bunker vessel is already in the port, just a Summary Declaration (Customs) has to be carried out (this procedure is described on 2.4.4).
- If the LNG bunker vessel is not already in the port, all the procedures described in point 2.4 have to be developed.