

LNG CARRIER APPROVAL & VETTING PROCEDURES FOR LNG CARRIERS CALLING AT TERMINAL OFFSHORE LNG TOSCANA S.p.A. (OLT)

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1.0 Introduction

OVERVIEW

Introduction

This *LNG Carrier Approval & Vetting Procedures* document sets out the approval process of LNG Carriers nominated to berth, deliver LNG, and un-berth at the Terminal.

This chapter describes the scope and purpose of this document. It also contains other basic information, such as who the intended reader/users are, how the document is organized and who has control and custody of it.

In this chapter

This chapter contains the following information:

1.1 Using This Document

1.2 Regulatory Requirements

1.1 USING THIS DOCUMENT

Purpose

This document provides guidance for the approval process for LNG Carriers nominated to call at the Terminal

Scope

This document describes the approval process for all LNG Carriers nominated to call at the Terminal.

Readers

This document is to be used by OLT, the Terminal Operator, the Users, the LNG Carrier owners/charterers and crew and the LNG Carrier Operators and the following key personnel:

- Operations Manager
 - Commercial Manager
 - Terminal Manager
 - Marine Superintendent
-

Document organization

Document organization follows these guidelines:

- This document is organized by chapters.
 - The 'Table of Contents' at the front of the document lists chapter titles and the sections and topics of each chapter.
 - Each chapter includes a table of contents that lists the sections and topics within that chapter.
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Document Owner

OLT has overall custody and control of the LNG Carrier Approval & Vetting Procedures and is responsible for any subsequent changes made to them.

Changes/Amendments

OLT reserves the right to amend the LNG Carrier Approval & Vetting Procedures from time-to-time without prior notice or consultation.

1.2 REGULATORY REQUIREMENTS

Acts and regulations:

For example but not limited to :

Maritime Safety Regulations Nr. 6/2014 issued by the Livorno Harbor Master on January 29th 2014, updated time-to-time.

Authority for Electricity and Gas, resolution n. 167/05 dated 1st August 2005 as updated from time to time.

D.M. 02/08/2007 – Ministry of Transport “Norme provvisorie per il trasporto marittimo alla rinfusa delle merci pericolose allo stato gassoso, norme per gli allibi e procedure amministrative per il rilascio dell’autorizzazione all’imbarco ed il nulla osta allo sbarco delle merci medesime”

2.0 General Information

OVERVIEW

Introduction

This chapter provides an overview of the LNG Carrier approval process

In this chapter

This chapter contains the following information:

2.1 General Information on LNG Carrier Approval Procedures

2.2 Structure of the Process

2.1 GENERAL INFORMATION ON LNG CARRIER APPROVAL PROCEDURES

Introduction

The purpose of these vetting/approval procedures is to establish a structured process that evaluates the LNG Carrier's capability safely and efficiently to deliver LNG to the Terminal. This is referred to as the "**Approval Process**" and consists of two different activities:

- compatibility with the Terminal (covered in Chapter 3 of this document)
- 'Quality Assurance' of the LNG Carrier and the LNG Carrier Operator (covered in Chapter 4 of this document)

The process includes the following tasks:

- Check of the physical characteristics of LNG Carrier against the Terminal's requirements ("**Compatibility Study Process**")
- Assessment of the capability of the LNG Carrier to perform to predefined safety and environmental standards

Only those LNG Carriers which have successfully gone through both of these streams of the Approval Process will be approved by OLT to deliver LNG to the Terminal.

Note: the LNG Carrier's performance ("**Vessel Performance**") is monitored by OLT to ensure that the required performance levels are met and maintained.

The procedures established by OLT are broadly consistent with:

- existing international and national rules and regulations, implemented by the flag state / port state of the Terminal
- industry forum recommendations such as OCIMF (as published at <http://www.ocimf.com>), SIGGTO (as published at <http://sigtto.re-invent.net/DNN/>), GIIGNL (as published at <http://www.giignl.org/>) or Gas Infrastructure Europe (as published at <http://www.gie.eu.com>).

These LNG Carrier Approval & Vetting Procedures also address the following specific aspects:

- safety and security at the berth
- LNG Carrier verification prior to berth
- particulars of the LNG cargo and LNG Carrier during unloading operations

- crew qualifications
- the Terminal's safety and operational procedures

References:

[Chapter 3, "Compatibility Approval Steps"](#)
[Chapter 4, "Quality Approval Process"](#)

2.2 STRUCTURE OF THE APPROVAL PROCESS

Introduction

Each LNG Carrier proposed for unloading at the Terminal undergoes the Compatibility Study Process. This comprises an assessment of the LNG Carrier plus an assessment of the LNG Carrier's Operator. The process steps are listed in the following table.

| Task | Action |
|------|---|
| 1 | Exchange preparatory information. |
| 2 | Compatibility Checklist. |
| 3 | Final Safety Inspection of LNG Carrier. |
| 4 | Unloading Test and Compatibility Approval. |
| 5 | LNG Carrier Compatibility Approval follow-up. |

3.0 Compatibility Approval Steps

OVERVIEW

Introduction

This chapter provides detail on the steps used to approve compatibility

In this chapter

This chapter contains the following information:

3.1 Step 1 –Preparatory Information

3.2 Step 2 –LNG Carrier/Terminal Compatibility Study Checklist

3.3 Step 3 –LNG Carrier Final Safety Inspections

3.4 Step 4 –Unloading Test and LNG Carrier Compatibility Approval

3.5 Step 5 –LNG Carrier Compatibility Approval Follow-Up

3.1 STEP 1 –PREPARATORY INFORMATION

| | |
|-------------------------------------|---|
| Objective | The main objective of Step 1 is to gather all necessary material (for example, information, data, drawings) to conduct the LNG Carrier / Terminal compatibility study (Compatibility Study) |
| Documentation exchange | <p>Exchange of information between OLT and the User is to be made through designated representatives of both parties. The User is to nominate its representative following first contact.</p> <p>Communication and documentation transmission means are to be email and/or fax. Alternative means to be agreed between parties if necessary.</p> |
| Information submitted by OLT | When OLT receives a request by the User's designated representative to deliver LNG at the Terminal from a LNG Carrier not already entered on the 'FSRU Toscana Acceptable LNG Carrier/Terminal Compatibility List' (as published on the OLT commercial web-site), the Terminal shall make available the documents described in the following table to the User. |

| Document | Description |
|--|--|
| Society of International Gas Terminal Operators (SIGTTO) 'Ship/Shore Questionnaire for Compatibility of Liquefied Gas Ships with Loading/Unloading Jetties' | This document provides details on mooring and manifold arrangements, loading arm, and other Terminal aspects required to conduct a Compatibility Study |
| Terminal Regulations and Information Booklet | This document includes information and procedures pertaining to safety and operational requirements at the Terminal that are necessary to, for example, fill out the International Maritime Organization (IMO) checklist at the Unloading Port |
| Cargo Handling Manual | This document describes the procedures for cargo handling |
| Environmental, Safety and Quality Minimum Criteria for LNG Carrier calling at GNL FSRU Toscana Terminal | This document provides an understanding of the minimum criteria with respect to the marine, environmental, safety and quality assurance standards |
| LNG and Gas Measurement Manual | This document provides information and procedures pertaining to LNG and gas measurement/sampling |
| Confirmation List of Terminal and LNG Carrier Operator for the performance of Compatibility Study | This document is divided in two sections: LNG Carrier and Terminal specification, necessary for the performance of Compatibility Study |

Note: Users must retrieve port information related to marine aspects for access and berthing at the Terminal directly from the Maritime Authority of the Port of Livorno (Italy).

Information submitted by User Listed below is the information that the User must send to OLT before the Compatibility Study is performed as part of the approval process

| Item | Description |
|---|---|
| LNG Carrier/Terminal Compatibility Plans | This document, if available, is to be provided as per SIGTTO information Paper #5, "Communication Necessary for Matching Ship to Berth". If it is not available, the User shall instead submit the following documents: <ul style="list-style-type: none"> • General Arrangement Plan • Manifold layout • Mooring arrangements • Drawing of the parallel body side of the LNG Carrier Reference: <i>SIGTTO Paper #5</i> |
| Confirmation List of Terminal and LNG Carrier Operator for the performance of Compatibility Study | The LNG Carrier specification and remarks sections of this document shall be fully completed in full by the User or the LNG Carrier Operator. The party completing these sections warrants the accuracy of the data provided. |

Reference: Confirmation List attached

Information submitted by User, continued

| Item | Description |
|---|---|
| SIGTTO Ship/Shore Questionnaire | The User or LNG Carrier Operator must submit a completed SIGTTO "Ship/Shore Questionnaire for Compatibility of Liquefied Gas Ships with Loading/Unloading Jetties". |
| LNG Carrier Questionnaire | SIGTTO form "Ship Information questionnaire for Gas Carrier" 1998, 2nd edition. Alternatively latest copy of OCIMF Vessel Particular Questionnaire (VPQ) may be required by the Terminal. |
| Certified Custody Transfer Measurement System description | Description of the LNG Carrier Custody Transfer Measurement System and certificate of accuracy for offshore use (1). |
| Tank Gauge Tables | User or LNG Carrier Operator shall provide approved copies |
| LNG Carrier Operational and Safety Procedures while Alongside | <p>Procedures pertaining to the International Safety Management (ISM) code which address:</p> <ul style="list-style-type: none"> • Mooring • Cargo transfer • Fire fighting <p>Complete the information for the LNG Carrier part necessary to complete the applicable checklist</p> |
| List of Survey Status | This is issued by the Classification Society for the LNG Carrier |
| Inspection Reports | <p>The User or the LNG Carrier Operator shall provide the latest copies of these inspection reports:</p> <ul style="list-style-type: none"> • Classification Society • SIRE vetting certificate • Port State Control (Paris MOU) |
| Certificate of Entry | The Certificate of Entry must be with a Protection & Indemnity (P&I) Club that is a member of the International Group of P&I clubs in the maximum amount available with the relevant P&I club (including coverage for the LNG Carrier's legal liabilities for damage to the Terminal, spills/pollution and other third party injury and property damage). |
| Departure Plan (Membrane Vessels) | <p>A safe condition departure plan in the event that the LNG Carrier is required to depart the Terminal prior to completion of cargo discharge reviewed/approved by Class or tanks manufacturer.</p> <p>Reference: <i>Terminal Regulations and Information Booklet</i></p> |

(1) Users and LNG Carrier Operators must retrieve for themselves information related to the Maritime Authorities' approval for Custody Transfer Measurement System and Tank Gauge Tables.

3.2 STEP 2 – LNG CARRIER / TERMINAL COMPATIBILITY STUDY

Introduction

In order to verify both the technical compatibility of the LNG Carrier with the Terminal and the operational aspects, it is important that the LNG Carrier Operator, User, OLT and the Terminal Operator understand each other's operating procedures. This will be possible after reviewing all of the documents exchanged under Step 1.

Document analysis

After examining the information received in Step 1, OLT will perform, directly or via third party, a Compatibility Study to confirm whether the LNG Carrier is technically compatible with the Terminal. The conclusions from the Compatibility Study will be provided to the User or the User's designated representative and to the LNG Carrier Operator.

In particular, the Terminal will check the following minimum criteria:

- Physical and technical compatibility with the Terminal dimensions and specifications
- Nautical and safety aspects
- Compliance with Terminal communication links and ESD system
- Certification of gauge tables covering all cargo tanks in the LNG Carrier and Custody Transfer Measurement System

Note (1): Certification of gauge tables is verified by the relevant authorities and accepted by OLT before the first unloading. This certification must be carried out by an appropriately qualified organization

Note (2): Custody Transfer Measurement System specifications and methods must comply with the requirements and specifications detailed in Terminal Measurement Manual

Note: (3) Certification of gauge tables verified and accepted by relevant Maritime Authorities: LNG Carrier to use Ship's Agent services to deal with these requirements

Reference: *Terminal Measurement Manual*

Mooring arrangement

The LNG Carrier Operator shall prepare and present:

- a proposed mooring arrangement;
- a mooring calculation; and
- a drawing, for operational purposes only, of the proposed mooring arrangement for the specific LNG Carrier,

OLT will then review (directly or via a third party) the above received documentation and, if the LNG Carrier is compatible, shall issue, for operational purposes only, a drawing of the approved mooring arrangement for the specific LNG Carrier.

Continued

LNG CARRIER / TERMINAL COMPATIBILITY STUDY continued

Preliminary LNG Carrier / Terminal compatibility meeting

Following the completion of the document analysis, a preliminary LNG Carrier / Terminal compatibility meeting ("**Preliminary Meeting**") may be called at OLT's Livorno offices. This is attended by representatives of the LNG Carrier's Operator, Users and the Terminal Representative, in order to examine the berth, 'ship-shore' interfaces, safety and communications items in relation to the LNG Carrier and the Terminal.

The minimum agenda of the Preliminary Meeting is:

- review of Compatibility Study conclusions.
- review of all parameters of the LNG Carrier / Terminal safety plan completion. This will include the documents dealing with safety and security, such as fire fighting, cargo transfer, and mooring. All this will be checked and, if necessary, adapted.
- cargo tank custody transfer management.
- agent assignment and tasks.

Any LNG Carrier that successfully completes Steps 1 and 2 is considered a "**Compatibility Pre-approved**" LNG Carrier for its initial voyage to the Terminal, subject to a successful Final Safety Inspection.

References:

- Appendix A, "Topics for Preliminary Meetings" for an informative list of topics to address during the Preliminary meeting.
 - Chapter 4, "Quality Approval Process"
-

3.3 STEP 3 –LNG CARRIER SAFETY INSPECTION

Introduction

OLT requires the LNG Carrier to undergo a “**Final Acceptance Visit**” prior to berthing. This inspection is performed by the Terminal Representative and/or by a Third Party and is done according to the inspection guidelines established by OLT.

These inspection guidelines are consistent with the Oil Companies International Marine Forum (OCIMF) inspection guidelines and SIGTTO’s latest recommendations for crew safety standards and training on LNG Carriers.

The following table describes the Final Acceptance Visit process.

| Step | Responsible | Action |
|------|-------------------------|--|
| 1 | Terminal Representative | <p>The Terminal Representative may find the LNG Carrier either “acceptable” or “unacceptable” for berthing or unloading at the Terminal. The Terminal Representative will as soon as practical advise the LNG Carrier Master, User, the Maritime Authority, the Pilot, OLT, the Terminal Operator and the ship’s agent accordingly.</p> <p>In case the LNG Carrier is found unacceptable the Terminal Representative will issue a “Rejected Report” which will include a list of remarks and deficiencies found.</p> <p>Reference : Terminal Regulations 11.1</p> |
| 2 | OLT | Sends the Rejected Report including the list of remarks and deficiencies to the User. |
| 3 | User | Forwards them to the LNG Carrier Operator and/or the charterer. |
| 4 | User | Provides plan for implementation of corrective actions to OLT. |
| 5 | OLT | Upon receipt and review of the plan for the implementation of corrective actions and confirmation that the plan has been fully carried out, OLT will decide whether to perform a second inspection in order to receive the LNG Carrier at the Terminal. |
| 6 | User | Promptly notifies or procures that OLT is notified if any LNG Carrier that is owned, chartered or otherwise employed by the User, pre-approved or approved, has been rejected or has failed a ship safety inspection at another LNG terminal. |
| 7 | User | Provides OLT with all relevant technical details and information in relation to that rejection or failure of safety inspection. |

3.4 STEP 4 –UNLOADING TEST AND LNG CARRIER COMPATIBILITY APPROVAL

Introduction

Depending on the outcome of the previous steps, an LNG Carrier will be deemed either technically approved for a single cargo unloading, subject to successful voyage screening (see Chapter 4) which includes the “**Unloading Test**” described below, or be rejected.

Reference: Chapter 4, "Quality Approval Process"

Unloading Test

If the LNG Carrier is approved pursuant to steps 1, 2 and 3, a single cargo unloading is permitted.

The LNG Carrier Unloading Test will determine whether the LNG Carrier crew understands the Terminal interface and will establish LNG Carrier/ Terminal compatibility. The Test will be assessed by the Terminal Representative.

Before unloading the LNG cargo, a pre-discharge meeting is held on-board LNG Carrier. During this meeting, the following will occur:

- A review of the Terminal Regulations and Information Booklet in order to ensure the crew’s understanding of the Terminal requirements, including, but not limited to:
 - Mooring, piloting, manoeuvring and towing;
 - Weather policy;
 - Fire fighting;
 - Unloading arm connection, disconnection and working envelope;
 - Cargo transfer, including discharge rates and minimum pressure to be maintained at Terminal’s loading headers during discharge; and
 - Cargo tank management;
 - Unloading communication; and
 - Emergency/Contingency procedures
 - A discussion of operational procedures (Note: certification of gauge tables is verified and accepted by the relevant authorities before the first unloading. This certification must be issued by a Qualified Organization.)
 - A copy of the the Terminal Regulations and Information Booklet will be delivered to the LNG Carrier's Master by the Terminal Representative.
 - The LNG Carrier's Master and the Terminal Representative will check and sign the "IMO International Ship/Terminal safety checklist and guidelines"
-

Continued

Unloading Test and LNG Carrier compatibility approval, continued

LNG Carrier compatibility approval procedure conclusion

Depending on the findings of the Unloading Test Report, OLT will determine if an LNG Carrier is technically compatible and suitable for future unloading at the Terminal. OLT will advise if the LNG Carrier:

- is approved for a thirty-six (36) month approval period, without being subjected to further Unloading Tests; or
- is accepted in future for another Unloading Test pending implementation of corrective action to the LNG Carrier; or
- is not accepted in future (without prior completion of the full Approval Procedure).

Any approval or condition is based upon the LNG Carrier's state at the time of the approval or condition definition. In case of change in the commercial, technical capabilities or specification of the LNG Carrier, OLT shall be notified of the change as soon as is practicable. Based on OLT's assessment of the change, it is in OLT's sole discretion to review its prior approval or condition.

Where the LNG Carrier is approved, as above, it will subsequently be entered in the list ('FSRU Toscana Acceptable LNG Carrier/Terminal Compatibility List') which is published on the OLT commercial web-site.

3.5 STEP 5 –LNG CARRIER COMPATIBILITY APPROVAL FOLLOW-UP

Introduction

Before and during each call at the Terminal, the User must provide timely assistance to OLT, to clarify and solve any urgent issues that arise before or during each call of one of User's LNG Carriers.

The User must keep OLT informed of any modifications to the LNG Carrier, or any changes in its condition or maintenance status related to technical, safety and/or managerial issues that may affect or have an impact upon prior approval of the LNG Carrier in question. Upon notification of such modifications or changes, OLT will assess if the prior approval of the LNG Carrier in question needs to be reconsidered.

OLT may require additional safety and technical inspections, in order to check the continued compliance of the LNG Carrier with safety and operational requirements of the Terminal. These inspections, at OLT's discretion, may occur prior to the time of berthing or at any other time and place determined by OLT, always in compliance with the Access Code.

Reference: Section 5.4, "Terminal Feedback Reports"

4.0 Quality Approval Process

OVERVIEW

Introduction

This chapter provides the process for quality approval of LNG Carriers nominated to call at the Terminal.

In this chapter

This chapter contains the following information:

4.1 Quality Vetting Requirements

4.2 Rejected LNG Carriers

4.3 The Elements of Quality Vetting

4.1 QUALITY VETTING REQUIREMENTS

Introduction

OLT requires that all LNG Carriers, prior to calling at the Terminal, have a quality vetting approval within the six months before the date of the LNG Carrier's proposed first call at the Terminal. The User is responsible for coordinating at its sole risk and expense the inspection of the LNG Carrier consistent with the quality vetting approval requirements (i) prior to the LNG Carrier's first call at the Terminal and (ii) prior to the LNG Carrier's first call at the Terminal following any material modification to such LNG Carrier and/or the Terminal.

OLT may require an additional inspection of any LNG Carrier nominated by the User if OLT determines that such inspection is necessary to ascertain such LNG Carrier's compliance with OLT's quality requirements.

Such additional inspection may be carried out directly by OLT's representatives or by a 'Quality Assurance' organization appointed by OLT.

The User must advise OLT in a timely manner of the cargo loading dates so that the inspection may be carried out prior to the loading of the LNG Carrier. OLT will notify the LNG Carrier Operator/User of the identity of the 'Quality Assurance' organization appointed.

Quality Vetting Pre - approval

OLT or the 'Quality Assurance' organization will inspect and review the LNG Carrier nominated to call at the FSRU Toscana Terminal for the 'Quality Assurance' of the LNG Carrier and the LNG Carrier Operator. If found acceptable, the LNG Carrier is pre-qualified by OLT to call at the Terminal.

Full acceptance for technical compatibility is not met until the LNG Carrier has successfully completed the compatibility approval steps, final inspection and Unloading Test.

Approval to call at the Terminal may be rescinded at OLT's discretion if, whilst the LNG Carrier is on passage, OLT receives adverse information that may affect OLT's prior approval of the LNG Carrier.

Not approved LNG Carriers

LNG Carriers assessed via the OLT screening process as "**Not Approved**" in the base case are not accepted for delivery of cargo to the Terminal and OLT will require that the User nominates an alternative LNG Carrier.

Note: it is advised that LNG Carrier nominations are made with sufficient lead time to allow for the potential need to find an alternate LNG Carrier.

Pre-approval period

OLT requires that Users must demonstrate that they have access to acceptable LNG Carriers to call at the Terminal. The quality pre-qualified period is for 12 months.

4.2 REJECTED LNG CARRIERS

General

LNG Carriers that fail to pass the Quality Vetting Requirements (ref. Chapter 4.1) are assessed as *Not Approved*.

Reference: Section 4.3, "The Elements of Quality Vetting"

OLT will communicate the rejection decision.

LNG Carriers assessed via the vetting/quality process as "Not Approved" in the base case are not accepted for delivery of cargo to the terminal and OLT requires that the User proposes an alternative LNG Carrier before cargo loading and/or in time enough to allow for completion of the approval process.

LNG Carrier on "doubts"

If an LNG Carrier is placed on "*doubts*" it means that conditions that potentially affect its performance have been identified.

These may be identified during the SIRE inspection evaluation, as a result of a Vessel Performance Report from other re-gasification terminals, or originate from some other source. The LNG Carrier Operator is informed by OLT of any *doubts* which remain in place until OLT receives a satisfactory response by the User.

In cases where there is no response to the *doubts* highlighted, if the *doubts* are deemed significant, OLT considers that the LNG Carrier is *Not Approved* until the *doubts* have been cleared. This normally requires some discussion or documented evidence between the User and OLT. If, however, the *doubts* are minor, OLT may evaluate and recommend the LNG Carrier as "*Approved-Subject to...xxx..*" with the *doubts* to be cleared before calling at the Terminal or by a later date.

Such *doubts* may also arise even where there are no actual deficiencies with the LNG Carrier. OLT may recommend that the LNG Carrier Operator complies with certain guidelines or regulations, or takes special precautions for a particular set of circumstances arising from the intended use of the LNG Carrier.

LNG Carrier "on hold"

Any LNG Carrier may be placed *on hold* for a number of technical or operational reasons. As a consequence, an LNG Carrier is designated *Not Approved* to call at the Terminal until the reasons for the *hold* are adequately addressed.

The reasons an LNG Carrier may be placed *on hold* include, but are not limited to, the following:

- The LNG Carrier is involved or has been involved in a pollution, collision, fire/explosion, or grounding or similar type incident.
- The LNG Carrier is judged to present an unacceptable safety and/or environmental risk.
- The LNG Carrier Operator's performance/policies are judged to present an unacceptable safety and/or environmental risk.

OLT shall not be liable for any cost, loss or expense incurred by the User for the *on hold* decision.

4.3 THE ELEMENTS OF QUALITY VETTING

Elements

In vetting the LNG Carrier, OLT or the 'Quality Assurance' organization (as approved by OLT) will use a variety of data such as:

- The most recent SIRE Vessel Inspection Questionnaire (VIQ)
 - Previous LNG Carrier inspection history
 - LNG Carrier history
 - Prior performance at the Terminal
 - Prior performance at other re-gasification terminals, if available
 - Outstanding technical issues on the LNG Carrier
 - Classification Society records relating to the LNG Carrier
 - Port State Inspection records
 - Assessment of the LNG Carrier Operator's TMSA including audit findings
 - Structural reviews
 - Casualty / incidents
 - Industry intelligence
 - Compliance with *Environmental Safety and Quality Criteria* (ESQC)
-

ESQC

The ESQC booklet prepared by OLT is available to all LNG Carrier Operators. The primary purpose of the document is to outline the Safety and Environmental and Quality Criteria required supplemental to those provided by Statutory Regulations.

In addition, it covers areas such as compliance with the Drug and Alcohol policy, 'Quality Assurance' organization inspection process and incident reporting.

LNG Carrier Operators must acknowledge and familiarize themselves with the ESQC that is part of the manuals delivered to Users / LNG Carrier Operators.

TMSA

As part of the vetting analysis, OLT or 'Quality Assurance' organization (approved by OLT) will evaluate the TMSA submission made by the LNG Carrier Operator.

All LNG Carrier Operators with LNG Carriers nominated to call at the Terminal must submit a TMSA report to OCIMF and release it to OLT or to the 'Quality Assurance' organization. This report is valid for twelve (12) months, but may be updated at anytime during this period.

OLT or the 'Quality Assurance' organization will maintain a rating for all LNG Carrier Operators. This rating is based on LNG Carrier Operator performance supplemented with an analysis of TMSA reports, as well as any audits of the LNG Carrier Operator's safety management system.

Reference: *OCIMF Tanker Management Self Assessment Program (TMSA)*

5.0 Ship Inspection Report Program (SIRE) Inspections

OVERVIEW

Introduction

This chapter provides an overview of the inspection process, feedback reports and incident reporting requirements

In this chapter

This chapter contains the following information:

5.1 Overview of SIRE and Application to Terminal

5.2 SIRE Inspections

5.3 Incident Reporting

5.4 Terminal Feedback Reports

5.1 OVERVIEW OF SIRE AND APPLICATION TO TERMINAL

Introduction

SIGTTO recommends that the SIRE inspection process is used for quality inspections of LNG Carriers

SIRE is an established, nonprofit, proven system, based on the marine expertise and experience of OCIMF members. More information are available at:
http://www.ocimf.com/tree_browse.cfmaction=sire_programme.

The VIQ is a continuously improved document that provides a structured and factual reporting process.

SIRE inspectors are accredited to ensure that they have an appropriate level of experience and qualification.

Reference: *SIGTTO, Ship Vetting and its Application to LNG*

5.2 SIRE INSPECTIONS

SIRE Inspection

The LNG Carrier Operator ensures that an operational VIQ for the LNG Carrier is available. The LNG Carrier Operator is responsible for arranging an operational inspection at least every 6 months. The LNG Carrier Operator must promptly submit any responses relating to observations raised during the inspection to the VIQ. This enables the comments to be considered during any subsequent LNG Carrier vetting.

Reference: VIQ

5.3 INCIDENT REPORTING

Requirements

In line with TMSA guidance, LNG Carrier owners and LNG Carrier Operators must maintain an internal incident and near-miss reporting and recording system. Using this system, they can record "lessons learned" and take necessary preventative actions.

The LNG Carrier Operator must as soon as practical inform OLT (lngc@oltoffshore.it) and/or the 'Quality Assurance' organization (approved by OLT) of any incidents or accidents sustained by or on the LNG Carrier. The reporting requirement is for all activities that the LNG Carrier undertakes (not just those activities that are exclusive to the Terminal).

OLT and/or the 'Quality Assurance' organization will evaluate such information as part of the vetting/quality requirements.

All incidents reported to OLT and/or the 'Quality Assurance' organization by the LNG Carrier Operator, or obtained through media/other industry sources will be recorded.

LNG Carrier Operators must undertake their own internal investigation to determine prime and root causes of the incident, and take corrective action to prevent recurrence. Investigation results to be made available to OLT on request.

Following an incident (wherever it takes place), the LNG Carrier, at OLT's discretion, may be placed *on hold* (for example, but not limited to, the LNG Carrier may be prevented from berthing at the Terminal) until OLT reviews the incident report and makes a determination that the LNG Carrier remains accepted. OLT shall not be liable for any cost, loss or expense incurred by the User, the LNG Carrier Operator or the LNG Carrier for such *on hold* decision.

5.4 TERMINAL FEEDBACK REPORTS

Feedback Report

For all LNG Carrier calls at the Terminal, the Terminal will complete a Terminal Feedback Form.

The Terminal Representative completes this form during the post transfer conference and advises the LNG Carrier Master of any issues arising from the LNG Carrier's call at the Terminal. These issues will be included in a report provided to the User by OLT.

Reference: Section 3.5, "Step 5 - LNG Carrier Compatibility Approval Follow-Up"

The report is one of the elements considered by OLT during the vetting/quality analysis for an LNG Carrier nominated to call at the Terminal. Use of the report will be limited to OLT and will not be shared with third parties.

In cases of a negative feedback reports, or where OLT indicates that the LNG Carrier's performance is unacceptable, the LNG Carrier Operator shall be notified and provided with details of actions needed to be taken by the LNG Carrier Operator to rectify the identified issues.

OLT may place the LNG Carrier on hold until the concerns have been adequately addressed by the LNG Carrier Operator and reviewed by OLT / 'Quality Assurance' organization (approved by OLT). OLT shall not be liable for any cost, loss or expense incurred by the User, the LNG Carrier Operator or the LNG Carrier for such *on hold* decision.

6.0 LNG Carrier / Terminal Compatibility

OVERVIEW

Introduction

This chapter provides Terminal-specific requirements additional to the standard compatibility requirements for LNG Carriers calling at the Terminal.

In this chapter

This chapter contains the following information:

6.1 Specific LNG Carrier Requirements for the Terminal

6.1 SPECIFIC LNG CARRIER REQUIREMENTS FOR THE TERMINAL

Requirements

There are specific requirements that apply to every LNG Carrier that calls at the Terminal.

OLT includes these requirements as part of the LNG Carrier / Terminal Compatibility Study Process and OLT acceptance. The requirements are:

- LNG Carrier must be in compliance with International Standards which means the standards and practices (guidelines) from time to time in force and applicable to the ownership, design, equipment, operation or maintenance of LNG carriers established by the rules of the IACS Classification Society or such other Classification Society that may be acceptable to OLT (in its sole discretion), the conventions, rules, guidelines and regulations laid down by the International Maritime Organization (IMO), the Oil Companies International Marine Forum (OCIMF), International Group of Liquefied Natural Gas Importers (GIIGNL), Society of International Gas Tankers and Terminal Operators (SIGTTO) (or any successor body of the same) and any other internationally recognized agency or organization with whose standards and practices it is customary for international operators of such vessels or terminals to comply, including the holding of a valid operational OCIMF Ship Inspection Reporting system (SIRE) certificate
- Minimum requirement for LNG Carrier's manifold shall be the compliance with OCIMF "Recommendation for manifold for refrigerated liquefied natural gas carriers (LNG)", second edition 1994 for all parameters (including spillage requirements, loads, spacing, material, mesh, etc).
- LNG Carrier to be in compliance with SIGTTO ESD arrangements (Optic+Pyle National or Pneumatic as back up) "SIGTTO ESD Systems and Linked Ship Shore Systems, edition 2009".
- LNG Carrier to be equipped with a port side manifold crane adequate to lift offshore n° 4 FMC spool pieces package cone and box = 800 KG SWL static each.
- LNG Carrier shall be responsible (and liable) for loading on board and fitting the target/cone distance piece on the presentation flange under the Terminal Berthing Master's supervision.
- LNG Carrier shall be able to maintain during all discharge, regardless of the discharging rate, a minimum pressure of 1,8 Barg at Terminal loading headers.
- LNG Carrier's mooring arrangement to be in compliance with OCIMF "Mooring Equipment Guidelines 3rd Edition MEG3".
- LNG Carrier's port parallel body side to allow contact with 5 fenders at 100%.
- LNG Carrier to confirm the compatibility with offshore environmental requirements of the proposed mooring equipment (winch, fair lead, chock, etc).
- LNG Carrier to be equipped in order to present 16 mooring lines, including 4 aft springs.
- Head, stern, spring and breast mooring lines must be fitted with 22-meter eight (8) strand synthetic mooring tails or any other suitable length as decided during the Compatibility Study Process. Certificates and inspection data in respect of these lines must be made available to OLT on request.
- Wire mooring ropes with shackle link for tails are accepted; HMPE mooring ropes with cow link on tails are preferred.
- LNG Carrier to evaluate during the Compatibility Study Process the needs of protecting the vessel mooring lines from abrasion with its hull, fairleads and chocks
- 'Departure Plan' (including partial fill operation for membrane tank type LNG Carriers)
 - **Reference:** *Terminal Regulations and Information Booklet*

- LNG Carrier must be fitted with 60 mesh manifold loading strainers, as per SIGTTO “Recommendations for the Installation of Cargo Strainers on LNG Carriers”, 2nd Edition 1992.
- LNG Carrier to have collapsible or removable handrails at the manifolds to allow use of the Loading Arm cable connection guidance system.
- LNG Carrier’s air emissions to be in accordance with European Union Directive 2005/33/EC (D.Lgs 6/11/2007, n. 205)

In case any LNG Carrier calling at the Terminal does not comply with the International Standards as stated above and the other, Terminal-specific, criteria set out above, that LNG Carrier will be subject to a **“Non-standard Compatibility Study Process”**. This will be specifically tailored for each LNG Carrier and may include, for guidance only, a dedicated study of the unloading arms connection, mooring analysis, hydrodynamics etc.

Time to perform such Non-Standard Compatibility Study Process to be evaluated on case-by-case basis. All costs in performing said Non-Standard Compatibility Study Process to be for the User’s account.

SPECIAL PROVISION

When entering within eight miles distant from the Terminal, propulsion and energy generation on board LNG Carrier must use only Boil Off Gas as fuel; this is applicable both when navigating and when alongside the Terminal. Exceptions are possible only for safety, emergency, technical functionality of LNG Carrier equipment and / or with specific authorization from the Maritime Authorities.

Reference: SIGTTO “Recommendations for the Installation of Cargo Strainers on LNG Carriers”, 2nd Edition 1992

A. Topics for Preliminary Meetings

Introduction

This appendix provides a minimum list of discussion topics for a preliminary meeting.

| Topic | Description |
|---|---|
| Parties' representatives and contact details | The Terminal Representative and the User's representatives must be identified before the meeting and their contact details made available. |
| 'LNG Custody Transfer' checklist | <p>Items to address for this topic are (but not limited to):</p> <ul style="list-style-type: none"> • SIGTTO/OCIMF compatibility table discussion • Buyer/Seller obligations and rights • Risk Coverage (insurance) • Standards and units of measure • LNG quality specification (compatibility with pipeline gas quality limitations) • Wobbe index • HHV (Higher Heating Value) • Nitrogen content (less than 1,2 mol%) • Contaminants • Sulphur and mercury compounds • Impurities • Quality determination method • Boil-off gas handling • LNG measurement • Actions under deviation |
| LNG Carrier | <p>Items to address for this topic are the LNG Carrier's:</p> <ul style="list-style-type: none"> • General arrangement of ship's deck, clearly indicating mooring winches, bollards, hull penetration, and so on; • Permanent communication channels onboard, for example: <ul style="list-style-type: none"> – (Inmarsat) telephone numbers – Fax numbers and email addresses – Exact geometric volume of each cargo tank necessary for custody transfer calculations – LNG Terminal (information for the LNG Carrier) including maximum dimensions of LNG Carrier |
| Port user/operator | <p>Items to address for this topic are:</p> <ul style="list-style-type: none"> • Authority, contact person(s) • Ship's agent • LNG Carrier requests for additional services • Procedures for arranging of Pilots • Tugs |

Continued

Topics for Preliminary Meetings, continued

| Topic | Description |
|--|--|
| Pilotage / berth approach | Items to address for this topic are: <ul style="list-style-type: none"> • Communications • Pilot boarding • Number of tugs • Mooring arrangement and procedures |
| LNG Carrier / Terminal safety interface | This topic concerns emergency procedures and operational interfaces: <ul style="list-style-type: none"> • Contingency planning with a representative of the LNG Carrier Operator • Communications • Emergency response communications and liaison, including Public Affairs response |
| Mechanical Interfaces | Items to address for this topic are: <ul style="list-style-type: none"> • Unloading arm arrangements and operating envelope, including: <ul style="list-style-type: none"> ○ flange location, standard and size ○ Mesh requirements ○ cable guided system |
| Instrumentation Interfaces | Discuss the location and connector specifications for the umbilical communication systems (for example, Pyle National connector and /or pneumatic ESD and /or optical connector) for ESD systems |
| Ship/Terminal safety checklist | Check and confirm: <ul style="list-style-type: none"> • Safety interfaces • Procedures • Equipment • Safety tests (for example, the ESD test before start of unloading operation) • Crisis management plan |
| Cargo transfer arrangements | Discuss cargo transfer arrangements: <ul style="list-style-type: none"> • Offloading rates and pressure at Terminal loading headers • Cool-down • Vapour return procedures |
| Other information | Any other relevant information that exists at the time of the meeting |

Glossary

Terms, abbreviations and acronyms

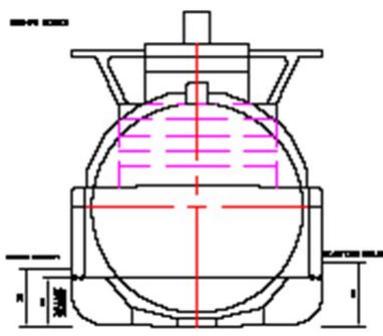
The following terms, abbreviations, and acronyms are used throughout this document

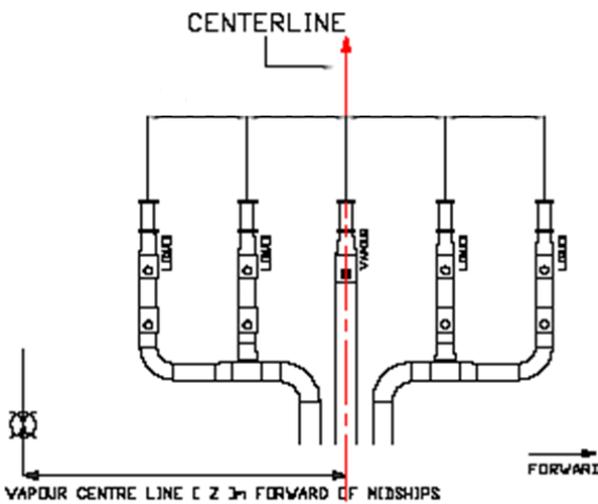
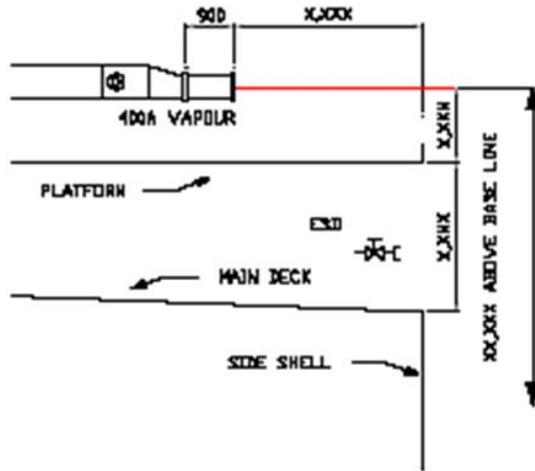
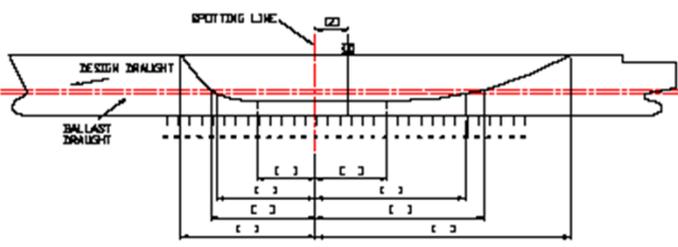
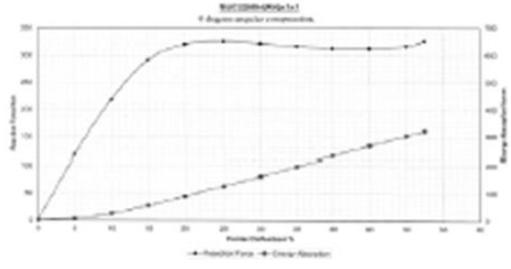
| Terms | Description |
|--------------------------------|--|
| ESQC | Environmental Safety and Quality Criteria |
| FSRU Toscana | Floating Storage and Regasification Unit – IMO no. 9253284 – Flag Italian LI 10153 |
| LNG Carrier | The term LNG Carrier is used throughout this document to mean a liquefied natural gas carrier intended to call at the Terminal |
| LNG Carrier Operator | The operator responsible for the technical operation and manning of the LNG Carrier, as defined in the Terminal Regulations. |
| Maritime Authorities | Means the Ministry of Infrastructures and Transport (Ministero delle Infrastrutture e dei Trasporti), the Autorità Portuale (Port Authority) and the Harbour Master. |
| Master | Any person legally and duly certified and appointed as commanding officer responsible for the navigation and management of an LNG Carrier or in his absence his duly authorized deputy |
| OCIMF | Oil Companies International Marine Forum |
| OLT | Off Shore LNG Toscana S.p.A. – owner and commercial operating company of the Terminal |
| SIGTTO | Society of International Gas Tanker and Terminal Operators |
| SIRE | The OCIMF Ship Inspection and Reporting system |
| Terminal | FSRU Toscana, including berth area and other facilities within the two nautical miles exclusion zone and Terminal management designated by OLT. Such management includes the person or persons (and his/their deputies and assistants) authorized by OLT to exercise the powers or perform the duties related to making and enforcing regulations, administration and control of the plant and berths. |
| Terminal Operator | The company appointed and authorized by OLT to perform the management and technical operation of the Terminal in accordance with ISM Code and ISO 9001 and 14001. |
| Terminal Regulations | The Terminal Regulations and Information Booklet as updated from time to time by OLT, which apply to LNG Carriers and Users in connection with the operation of LNG Carriers at the Terminal. |
| Terminal Representative | The designated person (s) who will board the LNG Carrier on behalf of the Terminal and will act as coordinator between the Terminal and LNG Carrier. The Terminal Representative or 'Berthing Loading Master' is in direct communication with the Terminal control room. |
| TMSA | Tanker Management Self-Assessment program |
| User | Any person to whom OLT provides the Services pursuant to a Capacity |

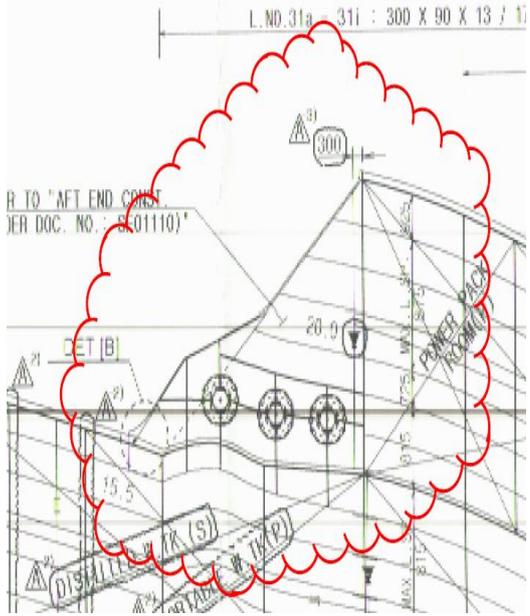
| | |
|------------|--------------------------------------|
| | Agreement |
| VIQ | SIRE Vessel Inspection Questionnaire |

CONFIRMATION LIST OF LNG CARRIER OPERATOR FOR THE PERFORMANCE OF COMPATIBILITY STUDY

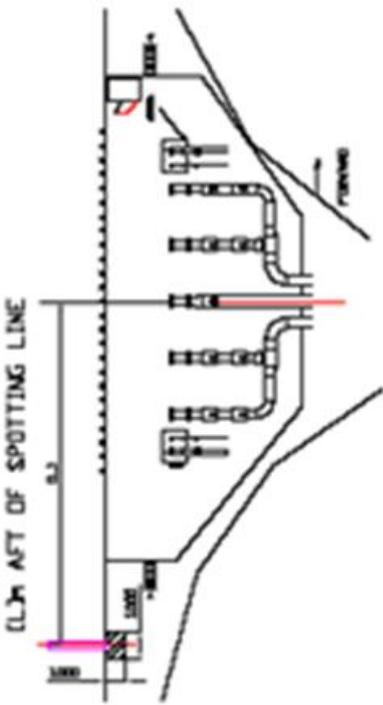
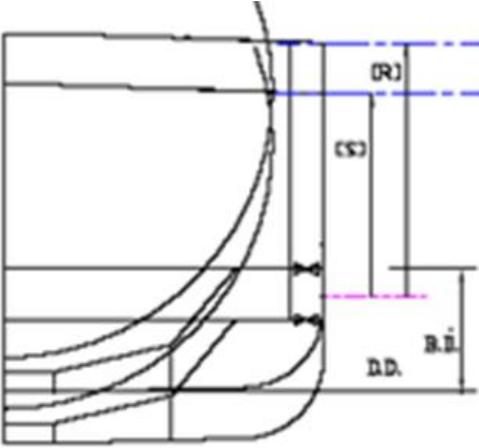
(as Example only).

| LNG CARRIER SPECIFICATION | | REMARKS |
|----------------------------------|-----------|--|
| LOA | | <p><i>Insert midship section indicating draught as below</i></p>  |
| LBP | | |
| Breadth | Moulded | |
| Depth | Moulded | |
| Draught | Design | |
| | Scantling | |
| | Ballast | |
| Heavy Ballast draft | Forward | |
| | Aft | |
| Tonnage | Gross | |
| | Net | |
| Displacement | Ballast | |
| | Design | |
| | Scantling | |
| Deadweight | Design | |
| | Scantling | |
| <i>Insert LNGC details above</i> | | |

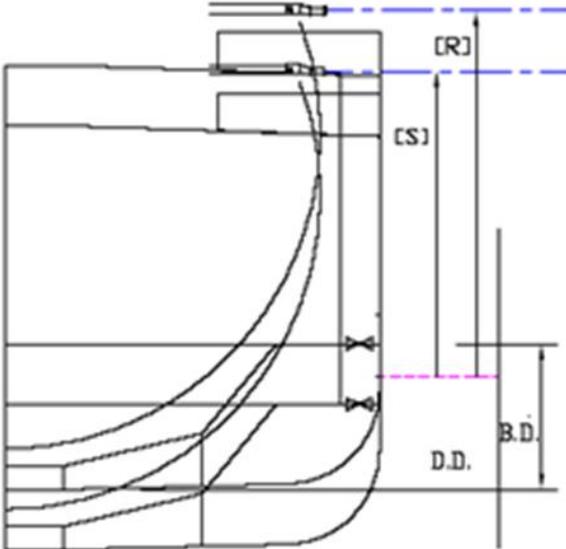
| LNG CARRIER SPECIFICATION | REMARKS |
|--|--|
| <p data-bbox="183 280 877 347"><i>Insert dimensioned plan drawing of manifold arrangement as below</i></p>  <p data-bbox="183 907 877 1019">Considering the possible existence of interferences on manifold vessel operator to verify and confirm the feasibility of connection of FMC spool piece with the manifolds. (See attached FMC targeting spool pieces drawing/pictures dimension).</p> <p data-bbox="183 1052 718 1086">Please revert with some pictures of LNGC manifold platform.</p> <p data-bbox="183 1108 319 1142">See appendix 4</p> | <p data-bbox="909 280 1388 347"><i>Insert dimensioned elevation drawing of manifold arrangement as below</i></p>  <p data-bbox="901 896 1428 985">Can the port side loading platform hand rails be lowered to deck level? This is required to allow the target wire to function properly.</p> <p data-bbox="901 1008 1428 1097">MANIFOLDS STRENGTH with SDP mounted to be confirmed in accordance to OCIMF recommendations, Class statement shall be provided.</p> |
| <p data-bbox="183 1292 869 1332"><i>Insert drawing showing dimensions of Flat body as below</i></p>  <p data-bbox="183 1668 734 1702">Fender Contact location: Refer to Appendix 1.</p> <p data-bbox="183 1724 383 1758">Ballast Draught:</p> <p data-bbox="183 1780 383 1825">Design Draught:</p> |  |

| LNG CARRIER SPECIFICATION | | | | | | | | REMARKS |
|---|----|---|----|----|---|---|-------|---|
| Mooring Arrangement Proposed: | | | | | | | | <p>Does the vessel have the ability to use two breast lines from the aft deck as spring lines going forwards ?? Below shows an example of the hull form to achieve this from a sunken deck.</p>  |
| | ST | B | SP | SP | B | H | TOTAL | |
| No. | | | | | | | | |
| <p><i>Proposed mooring arrangement to be shown in Appendix 2.</i></p> <p><i>Compliance with OCIMF guidelines to be demonstrated by calculation. Results to be presented in Appendix 3.</i></p> <p><i>Terminal will verify results independently using OPTIMOOR Software (copy of "Ship file" for same to be provided where available)</i></p> <p><i>Vessel shall be equipped with suitable tails for offshore use (22m or suitable to avoid clash between Mandal/Tongsberg and LNGC fairlead).</i></p> <p><i>Vessel Owner/Operator to communicate IF the SWL of Aft / fwd bits where the tugs will be made fast is adequate for escorting tugs.</i></p> <p><i>Our Escort tug bollard pull 110 T</i></p> | | | | | | | | |

| LNG CARRIER SPECIFICATION | REMARKS |
|---|----------------|
| <p>A personnel basket attached to the man ridding crane at the manifold of the FSRU, assistance from LNGC crew will be required.</p> <p>Please refer to the Terminal Operating Procedures.</p> <p>N° 4 FMC Targeting spool pieces cage to be storage on board the LNGC .</p> <p>The Spool pieces cage shall be load on board before the manoeuvring with ship crane from escort tugs and stored in a adequate position on board the LNGC . The spool pieces shall be removed one by one from the cage and transferred to the manifold platform for the installation.</p> <p>(Please for details of cage dimension see attached below doc'' 033470-AA-V03-434-ND-0013_A01VESSEL FSRU INTERFACE PLAN)</p> | |

| LNG CARRIER SPECIFICATION | REMARKS |
|---|--|
| <p>1-Insert drawing showing landing area of transfer basket on main deck as below:</p> <p>2-Insert drawing showing storage area for N°4 Targeting spool pieces cages</p>  | |
| <p>Insert drawing showing section of vessel berth with deck at highest and lowest elevation, as below:</p>  | <p>Freeboard @ Ballast Draught = [FBD]</p> <p>Freeboard @ Design Draught = [FDD]</p> |

| LNG CARRIER SPECIFICATION | REMARKS |
|--|--------------------------------------|
| <p>(i) Cargo pumps: <i>[Capac. x Disch.Head x Pcs]</i></p> <p>(ii) Stripping and Spray pumps: <i>Pcs]</i></p> <p>(iii) Pressure @ Manifold Fl.: <i>[Capac. x Disch.Head x Pcs]</i></p> <p>(iv) Flange Spec.: <i>[Pressure]</i></p> <p>(v) Strainer Details : <i>[Specif., Dimens of Spool pc]</i></p> <p><i>[type, mesh, size, short distance piece, reducer]</i></p> | <p><i>Ships Reducer details:</i></p> |
| <p>Cargo Custody System :</p> <p><i>Copy of calibration certificate. This in order to verify if the accuracy of level , temperature, and pressure gauging device is in accordance's to the iso standard . Please ref" FSRU Toscana - LNG and GAS quality and measurement Manual" to section 2.2 Ing testing and measuring methods: selection of gauging devices. 2.2.1 -2.2.2- 2.2.3.Is the vessel equipped with gauging average system in order to work in an offshore environmental ? CTMS accuracy for the offshore environmental (Please ref to "FSRU Toscana - LNG and GAS quality and measurement Manual" sect.2.3.2. Liquid Level for offshore environmental.)Measuring equipment shall make sure that the CTMS is able to compensate for dynamic movement while the LNG Carrier is moored at the Terminal. The internal level sampling rate of the CTMS shall be fast enough to enable an appropriate processing, resulting in above specified readings with time intervals of typically fifteen (15) seconds to be stable within CTMS accuracy limits. Such information shall be included as part of the LNG Carrier calibration already approved by a qualified surveyor.</i></p> | |

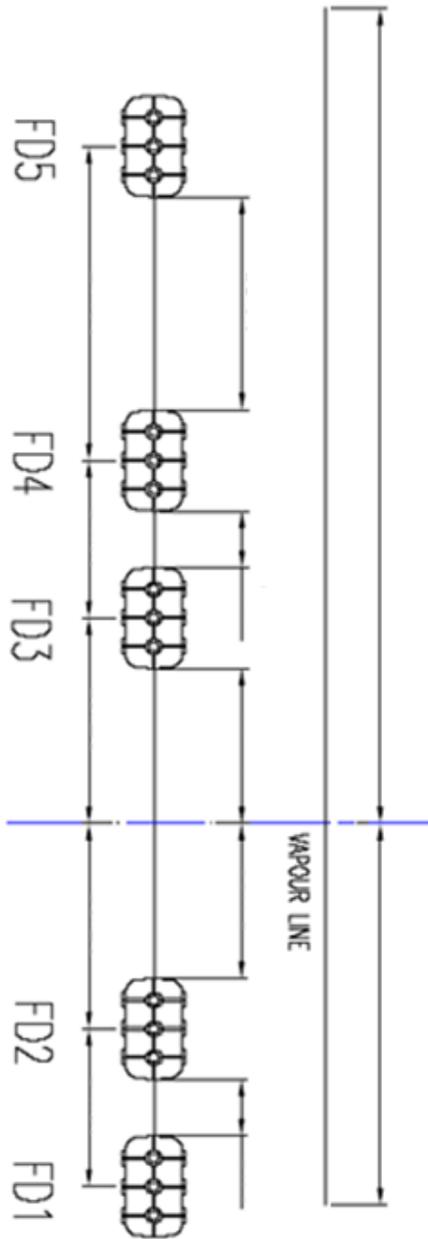
| LNG CARRIER SPECIFICATION | REMARKS |
|---|--|
| <p><i>Insert drawing showing cargo manifold at highest and lowest elevation to the water line as below:</i></p>  | <p>CL Manifold above WL @ BD = [MBD] CL Manifold above WL @ DD = [MDD]</p> <p>Manifold elevation:</p> <p>Highest (R) = m Lowest (S) = m</p> <p>In case Heavy ballast available insert :</p> <p>Highest (R) = m</p> |
| <p>ESD SYSTEM</p> | |
| <p>OPTICAL FIBER:</p> <ul style="list-style-type: none"> i) [Manufacturer] ii) [Connectors] iii) [Position] iv) [Length] | |
| <p>PNEUMATIC:</p> <ul style="list-style-type: none"> i) [Manufacturer] ii) [Connectors] iii) [Position] iv) [Length] v) [Working pressure Range] | |
| <p>ELECTRICAL:</p> <ul style="list-style-type: none"> i) [Manufacturer] ii) [Connectors] iii) [Position] iv) [Length] v) Insert pin arrangement | |

| LNG CARRIER SPECIFICATION | REMARKS |
|--|---------|
| <p style="text-align: center;">ESD 1 – ESD 2</p> <p>Activated by:</p> <ul style="list-style-type: none"> a) Manual push button b) Shore ESD c) d) e) f) <p>Effect:</p> <ul style="list-style-type: none"> i) Tripping of all cargo/spray pumps ii) Closure of all manifold valves iii) ESD signal to shore iv) v) | |
| COMMUNICATION SYSTEM | |
| <p>OPTICAL FIBER:</p> <ul style="list-style-type: none"> i) [System] ii) [Manufacturer] iii) [Connector] iv) [Location] v) [Length] | |

| LNG CARRIER SPECIFICATION | REMARKS |
|--|---------|
| <p>PNEUMATIC SYSTEM:</p> <ul style="list-style-type: none">i) [System]ii) [Manufacturer]iii) [Connector]iv) [Location]v) [Length] | |
| <p>ELECTRICAL SYSTEM:</p> <ul style="list-style-type: none">i) [System]ii) [Manufacturer]iii) [Connector]iv) [Location]v) [Length] | |
| <p>RADIO SYSTEM</p> <ul style="list-style-type: none">i) VHF Radio telephoneii) [Manufacturer]iii)iv) [Location] | |
| <p>TENSION MONITORING SYSTEM</p> <ul style="list-style-type: none">i) [System]ii) [Manufacturer]iii) [Connector]iv) [Location] | |

| LNG CARRIER SPECIFICATION | REMARKS |
|---|---|
| FIRE FIGHTING SYSTEM a) Exposed deck in cargo area: b) Loading station: c) Accomodation house front wall: d) Side plating: e) Cargo machinery room: f) Cargo dome area: | <i>D/P: Dry Powder</i> <i>S/W: Sea Water</i> <i>W/S: Water Spray</i> <i>W/C: Water Curtain</i> |
| H/D Compressor: <i>[Capac. x Disch.Head x Pcs]</i> | |
| Operating range of midship crane: <i>[Range]</i> | |

APPENDIX 1: ARRANGEMENT OF SHIP'S PARALLEL BODY AND FENDERS



APPENDIX 2: LAYOUT OF FAIRLEAD – MOORING WINCHES

Insert layout

APPENDIX 3: BERTHING ENERGY AND STATIC MOORING CALCULATIONS

Insert Optimoor study

| | |
|---------------|--|
| WINDAGE AREA: | |
|---------------|--|

APPENDIX 4: MANIFOLD FREE SPACE ENVELOPE FOR FITTING OF THE TARGETING CONE + LNGC DISTANCE PIECES

1-Vessel Operator to verify if there is sufficient space enough for the installation of spool pieces on manifold, any interference i.e. (ex drip tray, valves, etc?). Owner to verify for any interferences (drip tray, valves etc rails) between the LNGC manifold; dimension and Pictures of our spool pieces attached.



3-The transfer and installation of FMC spool pieces is under the LNGC responsibility under the supervision of our BML.

4-We need also confirmation that vessel has space on deck and capability (space) to load the FMC spool pieces cages (before berthing). The spool pieces shall be load on board the LNGC from our escort tug before the Berthing operation.

N° 4 cages should be load and stored on board the LNGC from our escort tug using LNGC Crane and N° 4 spool pieces removed from cage and transferred from the storage location to the manifold platform with the LNGC crane.

APPENDIX 5: POOR WEATHER DEPARTURE

Please refer to Terminal regulation and information booklet chapter 4.3 "Partial fill operation for membrane LNG Carrier".

