FREEPORT LNG CONTACT INFORMATION

TERMINAL OFFICES
Freeport LNG Terminal Manager
1500 Lamar Street
Quintana, Texas, USA 77541
979-415-8700
979-415-8733

Or

CORPORATE OFFICES
Freeport LNG Development, L.P.
333 Clay Street, Suite 5050
Houston, Texas, USA, 77002
713-980-2888
713-980-2903

Freeport LNG Website:  www.freeportlng.com

Email:  FLNGMarineOps@freeportlng.com

TUA Customer Website:  www.efreeportlng.com

LTA/SPA Customer Website:  https://ede-portal.freeportlng.com/User-Access

Issued By:  

Date: 11/28/2018
# Freeport LNG Terminal
## Freeport Marine Operations Manual

### Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFINITIONS/ABBREVIATIONS</td>
<td>8</td>
</tr>
<tr>
<td><strong>1. Purpose and Objectives</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Statement of Purpose and Disclaimer</td>
<td>12</td>
</tr>
<tr>
<td>1.2 Required Compliance</td>
<td>12</td>
</tr>
<tr>
<td>1.3 Objectives of Manual</td>
<td>12</td>
</tr>
<tr>
<td>1.4 Notes for Terminal Users</td>
<td>12</td>
</tr>
<tr>
<td><strong>2. General Information</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Terminal Description</td>
<td>14</td>
</tr>
<tr>
<td>2.2 Location</td>
<td>16</td>
</tr>
<tr>
<td>2.3 Weather</td>
<td>17</td>
</tr>
<tr>
<td>2.4 Relevant Charts and Nautical Publications</td>
<td>17</td>
</tr>
<tr>
<td>2.5 Tug Requirements</td>
<td>17</td>
</tr>
<tr>
<td>2.5.1 Selection of Tug Services Provider</td>
<td>17</td>
</tr>
<tr>
<td>2.5.2 Required Tug Resources</td>
<td>17</td>
</tr>
<tr>
<td>2.5.3 Vessels of Less than 200,000 m³ Cargo Capacity</td>
<td>17</td>
</tr>
<tr>
<td>2.5.4 Vessels of 200,000 m³ Cargo Capacity and Greater</td>
<td>18</td>
</tr>
<tr>
<td>2.5.5 Additional Tug Capability</td>
<td>18</td>
</tr>
<tr>
<td>2.6 Documentation Requirements</td>
<td>18</td>
</tr>
<tr>
<td><strong>3. Policies</strong></td>
<td></td>
</tr>
<tr>
<td>3.1 Violation of FLNG Policies</td>
<td>19</td>
</tr>
<tr>
<td>3.2 FLNG Policies</td>
<td>19</td>
</tr>
<tr>
<td>3.3 Terminal Safety Policies</td>
<td>19</td>
</tr>
<tr>
<td>3.4 Visitor Policy</td>
<td>20</td>
</tr>
</tbody>
</table>
4. PORT ENTRY PROTOCOLS

4.1 REQUIRED REPORTING PRIOR TO PORT ENTRY

4.1.1 Ship to Shore Compatibility
4.1.2 Cargoes Delivered to Terminal - Condition on Arrival
4.1.3 FLNG Notifications – Cargoes Delivered to Terminal
4.1.4 FLNG Notifications – Cargoes Loaded at Terminal
4.1.5 U.S. Coast Guard Notifications
4.1.6 Brazos Pilots Association
4.1.7 Master Pilot Exchange between Vessel Master and Brazos Pilot
4.1.8 Port Freeport
4.1.9 Terminal’s Notifications to Arriving Ships

4.2 PORT ENTRY INFORMATION

4.2.1 Typical Transit Routes
4.2.2 Local Navigation Conditions
4.2.3 U.S. Coast Guard Boarding Location
4.2.4 U.S. Coast Guard Moving Security Zone
4.2.5 Pilot Boarding
4.2.6 U.S. Customs and Border Protection
4.2.7 Mooring Line Assistance

5. BERTHING PROTOCOL / PROCEDURES

5.1 TERMINAL OPERATIONAL RESTRICTIONS

5.2 FLNG MARINE TERMINAL OPERATIONAL STATUS – WIND CONDITIONS

5.2.1 Operating Wind Speed Guidelines
5.2.2 Vessel Departing Terminal Due to High Winds
5.2.3 USCG Sector Hurricane Preparedness Plan

5.3 DESCRIPTION OF BERTHS AND DOCKING PROCEDURES

5.3.1 Berth No. 1 Capacity and Configuration
5.3.2 Berth No. 2 Capacity and Configuration
5.3.3 Mooring Line Handling
5.3.4 Spotting the Vessel on the Berth
5.4 BERTH EQUIPMENT
  5.4.1 Approach Speed Indicator Board
  5.4.2 Mooring Line Tension Monitoring
  5.4.3 Ship-to-Shore Communications Links
  5.4.4 Failure of Ship-to-Shore Voice Communications
  5.4.5 Cargo Arms
  5.4.6 ESD1 Valves
  5.4.7 Gangway
  5.4.8 Bonding cable
  5.4.9 Fire wires
5.5 STANDBY TUG
  5.5.1 Communications – Ship to Stand-by Tug
5.6 SECURITY ZONE
5.7 INTERNATIONAL SHORE CONNECTION
5.8 RECEIPT OF STORES AND DELIVERIES
  5.8.1 Bulk Deliveries
  5.8.2 Deliveries of Small Quantities of Stores, Supplies or Equipment
5.9 BUNKERING
5.10 REPAIRS
5.11 DISCHARGE OF BALLAST WATER
5.12 HANDLING OF NON-BALLAST OILY WASTE AND GARBAGE
5.13 CREW: SHORE LEAVE AND CREW CHANGE

6. CARGO TRANSFER PROCEDURES
  6.1 CARGO TRANSFER
    6.1.1 Overview
  6.2 TRANSFER PROCEDURES/PRE-TRANSFER MEETING
  6.3 DEPLOYMENT OF CARGO ARMS
  6.4 CONTROLS
    6.4.1 Controls in DCR
    6.4.2 Controls in MCR
  6.5 TERMINAL MONITORING
    6.5.1 Security
    6.5.2 Local Weather
6.5.3 Short Range Weather

6.6 POST CARGO TRANSFER DOCUMENTATION

7. EMERGENCIES

7.1 FREEPORT LNG EMERGENCY RESPONSE PLAN

7.1.1 Regulatory Compliance

7.1.2 Purpose

7.1.3 Scope

7.1.4 Objective

7.2 EMERGENCY SITUATIONS AT THE LNG BERTHS

7.2.1 General

7.3 EMERGENCY ON A VESSEL

7.3.1 Actions by the Vessel

7.3.2 Actions by the Terminal

7.3.3 Preparations for Evacuation

7.4 EMERGENCY ON THE BERTH

7.4.1 Actions by the Vessel

7.4.2 Actions by the Terminal

7.4.3 Preparations for Evacuation

7.5 EMERGENCY ELSEWHERE IN THE PORT

7.5.1 Actions by the Vessel and Terminal

8. DEPARTURE PROTOCOLS / PROCEDURES

8.1 PREPARATION FOR DEPARTURE

8.1.1 Daylight Restrictions

8.1.2 Pilots

8.1.3 Vessel Engine Room Preparations

8.1.4 Cargo Arm Draining, Purging and Disconnection

8.1.5 Ship-to-Shore Data Communication Devices and Gangway

8.2 DEPARTING

8.2.1 Tugs

8.2.2 Mooring Line Handlers
APPENDICES

A. FREEPORT AREA ORGANIZATIONS’ CONTACT INFORMATION 52
B. FREEPORT LNG CONTACT INFORMATION 57
C. REFERENCES 58
D. EXHIBITS: Dock 1 59
E. EXHIBITS: Dock 2 60
# DEFINITIONS / ABBREVIATIONS

<table>
<thead>
<tr>
<th>Arrival Location</th>
<th>The Pilot boarding station which is one (1) mile southeast of the Freeport entrance lighted whistle buoy (FP Buoy) which is in position 28° 52’ 30” N, 95° 14’ 12” W</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTU</td>
<td>British Thermal Unit</td>
</tr>
<tr>
<td>CCR</td>
<td>Cargo Control Room on board an LNG vessel</td>
</tr>
<tr>
<td>CCTV</td>
<td>Closed Circuit Television</td>
</tr>
<tr>
<td>CF</td>
<td>Cubic foot</td>
</tr>
<tr>
<td>cm</td>
<td>Centimeter</td>
</tr>
<tr>
<td>COTP</td>
<td>Captain of the Port, United States Coast Guard</td>
</tr>
<tr>
<td>DCR</td>
<td>Dock Control Room</td>
</tr>
<tr>
<td>DCS</td>
<td>Distributed Control System</td>
</tr>
</tbody>
</table>
| Displacement     | Light: the weight of the vessel and its spare parts, only; in tonnes  
Ballast: the weight of the vessel plus spare parts, fuels, fresh water, stores, full ballast and all personnel with their baggage; in tonnes  
Loaded: the weight of the vessel plus spare parts, fuels, fresh water, stores, a full cargo and all personnel with their baggage; in tonnes |
| ERP              | Emergency Response Plan                                                                                                                                                                            |
| ESD              | Emergency Shut Down                                                                                                                                                                                |
| ETA              | Estimated Time of Arrival                                                                                                                                                                          |
| Facility         | The waterfront facility handling LNG; 33 CFR 127.005                                                                                                                                              |
| FERC             | Federal Energy Regulatory Commission of the USA.                                                                                                                                                   |
| FiFi 1           | Fire Fighting Class 1                                                                                                                                                                               |
| FLNG             | Freeport LNG Development, L.P. or its successors and assigns; the Terminal owner and operating company                                                                                           |
| FO               | Fiber Optic                                                                                                                                                                                        |
| HSE              | Health Safety Environmental                                                                                                                                                                         |
| IG               | Inert Gas                                                                                                                                                                                          |
| IMO              | International Maritime Organization                                                                                                                                                                |
| ISGOTT           | International Safety Guide for Oil Tankers and Terminals                                                                                                                                            |
| kPaG             | Kilo Pascals, Gauge                                                                                                                                                                                 |
| LAT              | Lowest Astronomical Tide                                                                                                                                                                            |
LNG  Liquefied Natural Gas
LOA  The Length Overall of a ship
LTA  Liquefaction Tolling Agreement
Manual  The current version of this operating handbook entitled, Freeport Marine Operations Manual
Marine Transfer Area  That part of the waterfront facility handling LNG between the vessel, or where the vessel moors, and the last manifold or valve immediately before the receiving tank; 33 CFR 127.005
MARSEC 1, 2 or 3  Maritime Security Level 1, 2 or 3, as dictated by the US Coast Guard
Master  The Captain of a ship
MCR  Main Control Room; the Terminal’s principal control room
MLLW  Mean Lower Low Water
m  Meter
mb  millibar
m/s  Meters per second
m³  Cubic meter; a volume equal to the volume of a cube, each side of which is one (1) meter in length
nm  Nautical mile; a distance of 6080ft
NOA  Notice of Arrival
NOAA  National Oceanic and Atmospheric Administration
NOR  Notice of Readiness
Notice to Proceed  The notification issued by FLNG to an LNG vessel which has issued its NOR to FLNG. FLNG will issue the Notice to Proceed when the Terminal is ready for the vessel to proceed to the berth.
Operations Superintendent  The individual in charge of the entire Terminal’s operations
PERC  Powered Emergency Release Coupling
PPE  Personal Protective Equipment
PIC  Person-in-Charge; the Terminal’s / vessel’s person in charge of the cargo transfer operation in the Terminal or on the vessel, respectively. The Terminal’s PIC will be stationed in the Dock Control Room (DCR). The vessel’s PIC will be stationed in the vessel’s Cargo Control Room (CCR) throughout the cargo transfer operation.
Pilot
A member of the Brazos Pilots Association who is licensed as a State Pilot by the State of Texas and is engaged by the Transporter to board an LNG vessel to provide advice to the ship’s Master in Piloting, mooring and unmooring the vessel inside the limits of the Port of Freeport.

Psig
Pounds per square inch gauge

Responsible Officer
A person appointed by the ship’s Master and empowered to make all decisions relating to a specific task, and having the necessary knowledge and experience to perform that task

sec(s)
Second(s) of time

Security Zone
An area of exclusion around certain ships and waterfront facilities, subject to the designated USCG regulations

Shift Supervisor
The individual in charge of the Terminal’s operations during the standard twelve (12) hour working shift. This individual has responsibility for operations activities throughout the entire Terminal during the working shift. The Terminal’s cargo transfer PIC reports to the Shift Supervisor.

SIGTTO
Society of International Gas Tanker and Terminal Operators

SOLAS
The IMO ‘Safety Of Life At Sea’ convention.

SPA
Sale and Purchase Agreement

SSL
Ship-Shore Link; the data and voice communications umbilical cable between the LNG vessel and the Terminal

SWL
Safe Working Load

Terminal Manager
The FLNG representative, or his/her designee, in charge of the entire Terminal

Terminal
The FLNG Terminal’s berths, cargo transfer equipment and all other on-shore structures, tanks and equipment.

Terminal User
A customer that is either party to a contract with FLNG to deliver LNG cargoes to the Terminal and/or a customer that is party to a contract with FLNG to load LNG cargoes onto their vessels at the Terminal.

tonne
A weight equal to 1,000 kilograms

Transporter
Any person or company that owns, operates or commercially controls an LNG vessel that calls at the Terminal for any purpose.
TUA  Terminal Use Agreement. An agreement with a customer that is party to a contract with FLNG to deliver LNG cargoes to the Terminal.

Unloading Window  The forty-eight (48) hour period of time starting at 06:00, Central Time on a specified day and ending forty-eight (48) consecutive hours thereafter during which FLNG makes available to customers, a berth and LNG transfer services at the FLNG Terminal.

USCG  The United States Coast Guard
1. PURPOSE AND OBJECTIVES

1.1 STATEMENT OF PURPOSE AND DISCLAIMER

This manual has been prepared by FLNG for the benefit of Terminal Users, Transporters, vessel Masters and ship’s agents. This manual provides important information on the FLNG marine Terminal and its approach channel. Key components include information on Terminal entry and departure procedures, berth and mooring structure diagrams, manifold and shore connection diagrams and FLNG corporate policies at the Terminal.

FLNG shall use its reasonable endeavors to ensure the accuracy of the data contained herein, provided however FLNG does not warrant the accuracy of such data. FLNG reserves the right to modify this manual at any time. Unless otherwise agreed by FLNG in writing, it is the manual user’s responsibility to ensure that they have obtained the current edition of the manual. The latest version of this document can be obtained at www.freeportlng.com.

1.2 REQUIRED COMPLIANCE

Terminal Users, Transporters, shipping agents, vessel Masters, ship’s staff, third party service providers to the vessel and FLNG employees are all required to comply with the provisions of this manual.

1.3 OBJECTIVES OF THE MANUAL

This manual will:

I. Provide general information and contact information to Terminal users, Transporters and vessel Masters for port entry and departure;

II. Inform vessel Masters and operators of FLNG marine Terminal’s policies, procedures and restrictions;

III. Allow vessel Masters to review port and Terminal information;

IV. Provide technical information about the Terminal, its mooring arrangements and cargo transfer system;

V. Provide comprehensive information for emergency procedures.

1.4 NOTES FOR TERMINAL USERS

This Manual and the documents referred to in Section 3 – Policies, are available at the FLNG Customer websites:

I. For TUA customers at: www.efreeportlng.com

II. For LTA and SPA customers at: https://ede-portal.freeportlng.com/User-Access
III. The executed agreements (TUAs, LTAs, SPAs) between Freeport LNG Development, L.P. or any affiliate thereof and the Terminal Users will be the controlling documents should any conflicts arise between this manual and such agreements.
2. GENERAL INFORMATION

2.1 TERMINAL DESCRIPTION

The FLNG Terminal is located on Quintana Island on the west side of the Freeport Channel and south of the Intracoastal Waterway. The Freeport Entrance Channel and the Freeport Jetty Channel are dredged to a width of 600ft (182.9m) and a depth of -45ft (-13.7m) and the Freeport LNG berths are dredged to -46.5ft. (-14.1m) below MLLW (Mean Lower Low Water).

LNG vessels assigned to dock at Berth No. 1 proceed up the channel to the turning basin at the intersection of the channel and the Intracoastal Waterway, then maneuver astern, with the assistance of tugs, from the turning basin to the berth.

LNG vessels assigned to dock at Berth No. 2 proceed up the channel and turn to Port at the turning basin and maneuver bow first to the berth.

All berthing at the Terminal is Starboard side alongside.

These maneuvers are based on extensive full mission bridge simulation exercises performed by the Brazos Pilots who have proved them to be viable and safe.

The berths are of customary design. Berth No. 1 accommodates vessels of between 88,000 m³ cargo capacity and 267,000 m³ cargo capacity. Berth No. 2 accommodates vessels of between 88,000 m³ cargo capacity and vessels of any cargo capacity that do not have an LOA in excess of 300m (985ft). The current width of the Entrance and Jetty channels, from sea buoy to the dock basin has been shown, in simulation exercises, to be safe for the passage of Q-Max size vessels in benign environmental and tidal conditions. Both berths
are equipped with two breasting and three mooring dolphins both forward and aft of the ship’s vapor connection. Both berths are equipped with three (3) 16-inch liquid cargo arms and one (1) 16-inch vapor arm. The rules and regulations governing the operation of the Terminal fall under the jurisdiction of the Federal Energy Regulatory Commission (FERC), the United States Coast Guard (USCG), the U.S. Department of Transportation (DoT), the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA) and various State of Texas regulatory agencies.

There is no air-draft restriction between the sea buoy and the Terminal.

The FERC has mandated that in the event that two vessels are being loaded simultaneously, the combined maximum LNG transfer rate from the shore tanks to both docks must not exceed 15,000 m³ per hour.

Berth Specifications

<table>
<thead>
<tr>
<th>Berth No. 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Vessel LOA at Berth</td>
<td>1,132 ft. (345m)</td>
</tr>
<tr>
<td>Maximum Vessel Draft at Berth</td>
<td>42.0 ft. (12.8m)</td>
</tr>
<tr>
<td>Maximum Vessel Beam at Berth</td>
<td>180.0 ft. (54.8m)</td>
</tr>
<tr>
<td>Water depth at berth</td>
<td>46.5ft. (14.17m)</td>
</tr>
<tr>
<td>Ship Side Alongside</td>
<td>Starboard</td>
</tr>
<tr>
<td>Berth Heading</td>
<td>45.5°T</td>
</tr>
<tr>
<td>Maximum Approach Speed to Fenders</td>
<td>0.49 ft./s (15 cm/s)</td>
</tr>
<tr>
<td>Port’s Chart Datum Level</td>
<td>Mean Lower Low Water (MLLW)</td>
</tr>
<tr>
<td>Mean Lower Low Water (MLLW)</td>
<td>0.0 ft. (0.0m)</td>
</tr>
<tr>
<td>Low Astronomical Tide (LAT)</td>
<td>-4.25 ft. (-1.30m)</td>
</tr>
<tr>
<td>Mean Higher High Water</td>
<td>1.8 ft. (0.54m)</td>
</tr>
<tr>
<td>Highest Astronomical Tide (HAT)</td>
<td>5.91 ft. (1.8m)</td>
</tr>
<tr>
<td>Dock Water Density</td>
<td>Varies – Brackish to Salt</td>
</tr>
<tr>
<td>Cargo arm manufacturers – SVT</td>
<td>2 liquid, 1 vapor, 1 hybrid</td>
</tr>
<tr>
<td>Cargo arm size</td>
<td>16” ANSI Class</td>
</tr>
<tr>
<td>Spacing of cargo arms</td>
<td>4.0m</td>
</tr>
<tr>
<td>Connectors</td>
<td>Flanged cam-lock quick connects</td>
</tr>
<tr>
<td>Design working pressure</td>
<td>275 psig (1896 kPaG) @ -270/150°F</td>
</tr>
<tr>
<td>Usual Terminal working pressure</td>
<td>81 psig (558 kPaG)</td>
</tr>
<tr>
<td>Emergency release</td>
<td>PERCs</td>
</tr>
<tr>
<td>Max LNG transfer rate</td>
<td>10,000m³/hr.</td>
</tr>
<tr>
<td>Vapor arm maximum flow rate</td>
<td>60,000m³/hr.</td>
</tr>
</tbody>
</table>
## Berth No. 2

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Vessel LOA at Berth</td>
<td>985 ft. (300m)</td>
</tr>
<tr>
<td>Maximum Vessel Draft at Berth</td>
<td>42.0 ft. (12.8m)</td>
</tr>
<tr>
<td>Maximum Vessel Beam at Berth</td>
<td>170.6 ft. (52.0m)</td>
</tr>
<tr>
<td>Water depth at berth</td>
<td>46.5 ft. (14.17m)</td>
</tr>
<tr>
<td>Ship Side Alongside</td>
<td>Starboard</td>
</tr>
<tr>
<td>Berth Heading</td>
<td>224.5°T</td>
</tr>
<tr>
<td>Maximum Approach Speed to Fenders</td>
<td>0.49 ft./s (15 cm/s)</td>
</tr>
<tr>
<td>Port’s Chart Datum Level</td>
<td>Mean Lower Low Water (MLLW)</td>
</tr>
<tr>
<td>Mean Lower Low Water (MLLW)</td>
<td>0.0 ft. (0.0m)</td>
</tr>
<tr>
<td>Low Astronomical Tide (LAT)</td>
<td>-4.25 ft. (-1.30m)</td>
</tr>
<tr>
<td>Mean Higher High Water</td>
<td>1.8 ft. (0.54m)</td>
</tr>
<tr>
<td>Highest Astronomical Tide (HAT)</td>
<td>5.91 ft. (1.8m)</td>
</tr>
<tr>
<td>Dock Water Density</td>
<td>Varies – Brackish to Salt</td>
</tr>
<tr>
<td>Cargo arm manufacturers – SVT</td>
<td>2 liquid, 1 vapor, 1 hybrid</td>
</tr>
<tr>
<td>Cargo arm size</td>
<td>16” ANSI Class</td>
</tr>
<tr>
<td>Spacing of cargo arms</td>
<td>4.0m</td>
</tr>
<tr>
<td>Connectors</td>
<td>Flanged cam-lock quick connects</td>
</tr>
<tr>
<td>Design working pressure</td>
<td>275 psig (1896 kPaG) @ -270/150°F</td>
</tr>
<tr>
<td>Usual Terminal working pressure</td>
<td>81 psig (558 kPaG)</td>
</tr>
<tr>
<td>Emergency release</td>
<td>PERCs</td>
</tr>
<tr>
<td>Max LNG transfer rate</td>
<td>10,000m³/hr.</td>
</tr>
<tr>
<td>Vapor arm maximum flow rate</td>
<td>60,000m³/hr.</td>
</tr>
</tbody>
</table>

## 2.2 LOCATION

- **Nearest Major City:** Houston, Texas.
- **Terminal Position:**
  - Latitude: 28° 56.9' N
  - Longitude: 95° 18.5' W
- **Time Zone:**
  - GMT (–) 6 hours
  - U.S. Central Time Zone
  - Daylight Saving Time: Second Sunday in March (+1 Hour)
  - First Sunday in November (–1 Hour)
2.3 WEATHER

Normal historic weather conditions in the Port of Freeport are as follows:
- **General direction of prevailing winds:** 135° – 180°
- **General direction of maximum wind speed:** 135° – 180°
- **Average Wind Speed:** 5-10 knots (5.7 – 11.5 mph)
- **Cross Channel Current Direction:**
  - Winter: Toward the SW
  - Summer: Toward the NE
- **Jetty Channel Current directions:** 138 / 318° ebb / flood
- **Jetty Channel Current speed:** 0 – 0.5 knots (0 – 0.6 mph)
- **Sea Temperature (average):**
  - Winter: 56°F (13.3°C)
  - Summer: 84°F (28.7°C)

2.4 RELEVANT CHARTS AND NAUTICAL PUBLICATIONS

Masters are to ensure that they have the latest editions of all relevant charts and other nautical publications for safe navigation:

- **NOAA Chart No:**
  - 11321
  - 11322
- **Pilotage Guides:**
  - Brazos Pilots Association
  - Annual Port Guide and Tide Tables

2.5 TUG REQUIREMENTS

2.5.1 Selection of Tug Services Provider

Terminal users are required to coordinate with and advise FLNG which tug company they choose to employ.

2.5.2 Required Tug Resources

FLNG requires that the following tug resources are in place to ensure the safe harbor channel transit, docking and undocking of LNG vessels calling at the Terminal.

2.5.3 Vessels of Less than 200,000 m³ Cargo Capacity

I. A minimum of three (3) tugs shall be available for all vessel arrivals and departures.
II. A minimum of two (2) of the tugs on arrivals and departures must be equipped with marine FiFi 1 capabilities.
III. One (1) tug with FiFi 1 capabilities will remain on stand-by, in close proximity to the Terminal and dedicated to the LNG vessel that is at the Terminal.
IV. The total bollard pull of the three (3) tugs shall not be less than one hundred and eighty (180) short tons, (136.29 tonnes) none of the tugs having less than fifty (50) short tons (45.36 tonnes) bollard pull capability.

2.5.4 Vessels of 200,000 m³ Cargo Capacity and Greater

I. A minimum of four (4) tugs shall be available for all vessel arrivals and departures.
II. A minimum of two (2) of the tugs on arrivals and departures must be equipped with marine FiFi 1 capabilities.
III. One (1) tug with FiFi 1 capabilities will remain on stand-by, in close proximity to the Terminal and dedicated to the LNG vessel that is at the Terminal.
IV. The total bollard pull of the tugs on arrival and departure shall not be less than two hundred and twenty five (225) short tons, (204.12 tonnes) none of the tugs having less than fifty (50) short tons (45.36 tonnes) bollard pull capability.

2.5.5 Additional Tug Capability

It is up to the vessel’s Master and/or Pilot to decide if additional tug capability is needed over and above the minimums required by FLNG.

NOTE: FLNG does not require tugs with full FiFi 1 Classification Society capabilities in attendance at the LNG vessels. The FiFi 1 tugs that FLNG requires for attendance on the vessels at the berths are tugs with the water throwing and water deluge system capability that is required of Classed FiFi 1 tug.

In the event that there are two LNG vessels at the Terminal concurrently, there shall be a FiFi 1 (water throwing capability) tug dedicated to each vessel while the vessel is alongside an FLNG dock.

2.6 DOCUMENTATION REQUIREMENTS

Vessel Masters are responsible for all required documentation for entry into the United States of America. Masters are advised to check with their local agents for the most up-to-date list of required port entry documents. For vessels that have traded to the Far East at any time during the previous 24 months, every vessel must have valid certification to prove that it was inspected, at its most recent departure from the Far East area, for infestation by the Asian Gypsy Moth and the vessel was found to be infestation free. If applicable, and for the expediency of the vessel’s Agent preparing the vessel’s port entry documentation for the USA, the infestation free Certificate may be included in the vessel’s Notice of Departure upon commencing its voyage to the FLNG facility.
3. POLICIES

3.1 VIOLATION OF FLNG POLICIES

All vessel personnel and visitors are required to fully comply with FLNG policies at all times while within the Terminal limits. Failure to comply with all FLNG policies may result in actions up to and including removal of personnel from the Terminal. Additionally, persistent violations of FLNG policies by vessel personnel, which are not corrected by the vessel’s senior staff, may result in action against the vessel by FLNG, including stoppage of the cargo operation and, in extreme cases, expulsion of the vessel from the Terminal.

Neither the Terminal nor the Terminal users will be responsible for any costs or losses resulting from the actions taken by Terminal personnel stemming from the failure of vessel personnel and/or vessels’ visitors to comply with FLNG policies.

All illegal or criminal activity observed at the Terminal will be immediately reported to the law enforcement authorities.

3.2 FLNG POLICIES

Details of the following FLNG policies are available to all TUA customers at the FLNG Customer Website: www.efreeportlng.com

Details of the following FLNG policies are available to all LTA and SPA customers at the FLNG Customer Website: https://ede-portal.freeportlng.com/User-Access

I Health, Safety and Environmental (HSE) Management System for Operations

II Emergency Response Plan

III Hurricane Preparedness Plan

3.3 TERMINAL SAFETY POLICIES

FLNG subscribes to all of the safety principles and practices detailed in the latest edition of the ISGOTT. The safety checklists used at the Terminal are the ISGOTT checklists. Ship’s staff are expected to comply with all of the provisions of ISGOTT when the ship is at the FLNG Terminal and when they are passing through the secure area of the Terminal, traveling to or from the vessel. Non-compliance with ISGOTT will result in the Terminal management taking action as detailed in Section 3.1 above.

FLNG is a member of SIGTTO and subscribes to all of the best working practices recommended by SIGTTO.

[10/24/18]19
3.4 VISITOR POLICY

It is the policy of FLNG that no visitors below the age of eighteen (18) years will be allowed within the Terminal. This policy applies to all individuals including those who are passing through the Terminal to board a vessel and those who are leaving a vessel to pass through and exit the Terminal.

If ship visitors are going from Gate 10 directly to a ship at either dock, then no PPE is required to pass through the terminal. If representatives will be remaining in the dock area or terminal process area for any length of time, or working on the open spaces of a vessel, then the terminal PPE requirements must be followed. Such persons must be equipped with, and wear, fire retardant outer clothing, safety shoes/boots, a safety helmet and safety eyeglasses.
4. PORT ENTRY PROTOCOLS & INFORMATION

4.1 REQUIRED REPORTING PRIOR TO PORT ENTRY

It is the responsibility of all Terminal Users and Transporters to ensure timely communications with the Terminal and issuance of notices as detailed in this section, to ensure the avoidance of delay in a ship’s schedule.

4.1.1 Ship to Shore Compatibility

I. Prior to a vessel calling at the FLNG Terminal for the first time, the Terminal user/vessel owners/operators are required to complete and submit to FLNG the vessel data requested by FLNG. The vessel owners/operators must provide all of the information requested by FLNG in order for FLNG to conduct and complete a ship-to-shore compatibility review to ensure the compatibility of the vessel with the Terminal’s berths. All vessel compatibility review requests from Terminal user/vessel owners/operators should be addressed to vesselcompatibility@freeportlng.com

II. The Terminal user/vessel owners/operators must receive written approval from the Marine Operations Manager, or his designee, of the vessel’s compatibility with its assigned berth prior to the ship’s arrival. It is recommended that the Terminal user or Transporter supply FLNG with the vessel data as early as possible for the ship-to-shore compatibility review to be undertaken.

4.1.2 Cargoes Delivered to Terminal - Condition on Arrival

I. For vessels delivering cargoes to the Freeport LNG Terminal, which cargoes are to be vaporized and injected into the gas send-out pipeline, shippers are requested to make reasonable endeavors to ensure that upon the ships’ arrival at the Port Freeport Pilot station, the temperature and saturated vapor pressure of the cargo in each cargo tank should be, respectively:
   A. No warmer than -255°F (-159.5°C)
   B. No higher than 1150mb Absolute

II. Prior to the arrival of a vessel at the Terminal, the Master must coordinate the ship’s security needs and procedures with the Facility Security Officer via e-mail, facsimile, or other electronic means and agree upon the content of the Declaration of Security form which will be executed following the vessel’s arrival at the Terminal. Contact information for the Facility Security Officer is contained in Appendix B of this manual. A copy of the Terminal’s Declaration of Security form is contained in this manual in Appendix D, Exhibit 1, for the reference of vessels’ Masters.
4.1.3 FLNG Notifications – Cargoes Delivered to Terminal:

I. Vessel Master shall give FLNG the following notices:

A. A first notice (“First Notice”), which shall be sent upon the departure of the LNG Vessel from the Loading Port and which shall set forth the time and date that loading was completed, the volume (expressed in Cubic Meters) of LNG loaded on board the LNG Vessel, the estimated time of arrival (ETA) of the LNG Vessel at the Arrival Location, and any operational deficiencies in the LNG Vessel that may affect its performance at the Facility or berth;

B. A second notice (“Second Notice”), which shall be sent ninety-six (96) hours prior to the ETA set forth in the First Notice, stating the LNG Vessel’s then ETA. In this notice the Master will advise the Terminal of the average cargo temperature in each of the ship’s cargo tanks and also the cargo tank vapor space pressure, in millibars Absolute, in each of the ship’s cargo tanks. If, thereafter, such ETA changes by more than six (6) hours, the Vessel Master shall promptly give to FLNG notice of the corrected ETA;

C. A third notice (“Third Notice”), which shall be sent forty-eight (48) hours prior to the ETA set forth in the Second Notice, stating the LNG Vessel’s then ETA. In this notice the Master will advise the Terminal of the average cargo temperature in each of the ship’s cargo tanks and also the cargo tank vapor space pressure, in millibars Absolute, in each of the ship’s cargo tanks.

D. A forth notice (“Forth Notice”), which shall be sent twenty-four (24) hours prior to the ETA set forth in the Third Notice (as corrected), confirming or amending such ETA. In this notice the Master will advise the Terminal of the average cargo temperature in each of the ship’s cargo tanks and also the cargo tank vapor space pressure, in millibars Absolute, in each of the ship’s cargo tanks. Additionally in this notice the Master will confirm that the ship’s deck cargo lines will be cooled and drained back to the cargo tanks, before, but as close as possible to, the time at which the Brazos Pilot will board the ship for entering Port Freeport. If, thereafter, such ETA changes by more than three (3) hours, the Vessel Master shall promptly give to FLNG notice of the corrected ETA;

E. A fifth notice (“Fifth Notice”), which shall be sent twelve (12) hours prior to the ETA set forth in the Forth Notice (as corrected), confirming or amending such ETA. If, thereafter, such ETA changes by more than one (1) hour, the Vessel Master shall promptly give to FLNG notice of the corrected ETA; and

F. A notice of readiness, which shall be given at the time prescribed below.
II. Subject to any applicable restrictions, including any nighttime transit restrictions imposed by governmental authorities or Pilots or any other reasonable timing restrictions imposed by FLNG, the Vessel Master or its agent shall give to FLNG its notice of readiness (NOR) to unload (berth or no berth) upon arrival of such LNG Vessel at the Pilot Boarding Station (“Arrival Location”). An NOR shall become effective as follows:

A. For an LNG Vessel arriving at the Arrival Location (as defined in the Terminal Use Agreement) at any time before 6:00 a.m., Central Time on the first day of the scheduled Unloading Window allocated to such LNG Vessel, an NOR shall be deemed effective at the earlier of (a) 6:00 a.m., Central Time on the first day of such scheduled Unloading Window; or (b) the time unloading commences;

B. For an LNG Vessel arriving at the Arrival Location at any time between the period of 6:00 a.m., Central Time on the first day of the scheduled Unloading Window allocated to such LNG Vessel and two (2) hours before sunset, Central Time on the second day of such scheduled Unloading Window (such period referred to as the “NOR Window”), an NOR shall become effective at the time of its issuance; or

C. For an LNG Vessel arriving at the Arrival Location at any time after the expiration of the Unloading Window, an NOR shall become effective upon FLNG’s notice to the LNG Vessel that it is ready to receive the LNG Vessel at berth.

4.1.4 FLNG Notifications - Cargoes Loaded at Terminal

I. Prior to the arrival of a vessel at the Terminal, the Master must coordinate the ship’s security needs and procedures with the Facility Security Officer via e-mail, facsimile, or other electronic means and agree upon the content of the Declaration of Security form which will be executed following the vessel’s arrival at the Terminal. Contact information for the Facility Security Officer is contained in Appendix B of this manual. A copy of the Terminal’s Declaration of Security form is contained in this manual in Appendix D, Exhibit 1, for the reference of vessels’ Masters.

II. With respect to each cargo of LNG to be loaded, Customer shall give, or cause the Master of the LNG Vessel to give, FLNG notice upon the departure of the LNG Vessel from the last unloading port, dry-dock, repair port or other point of departure en-route to the Freeport Facility and the following notices:

A. A first notice (“First Notice”), which shall set forth and be sent ninety-six (96) hours prior to the estimated time of arrival of the LNG Vessel at the Arrival Location (“ETA”). If, thereafter, such ETA changes by more than six (6) hours, Customer shall give promptly, or cause the Master of the LNG Vessel to give promptly, to FLNG notice of the corrected ETA;
B. A second notice ("Second Notice"), which shall be sent seventy-two (72) hours prior to the ETA set forth in the First Notice (as corrected), confirming or amending such ETA. If, thereafter, such ETA changes by more than six (6) hours, Customer shall give promptly, or cause the Master of the LNG Vessel to give promptly, to FLNG notice of the corrected ETA;

C. A third notice ("Third Notice"), which shall be sent forty-eight (48) hours prior to the ETA set forth in the Second Notice (as corrected), confirming or amending such ETA. If, thereafter, such ETA changes by more than three (3) hours, Customer shall give promptly, or cause the Master of the LNG Vessel to give promptly, to FLNG notice of the corrected ETA;

D. A fourth notice ("Fourth Notice"), which shall be sent twenty-four (24) hours prior to the ETA set forth in the Third Notice (as corrected), confirming or amending such ETA. If, thereafter, such ETA changes by more than three (3) hours, Customer shall give promptly, or cause the Master of the LNG Vessel to give promptly, to FLNG notice of the corrected ETA;

E. A fifth notice ("Final Notice"), which shall be sent twelve (12) hours prior to the ETA set forth in the Fourth Notice (as corrected), confirming or amending such ETA. If, thereafter, such ETA changes by more than one (1) hour, Customer shall give promptly, or cause the Master of the LNG Vessel to give promptly, to FLNG notice of the corrected ETA; and

F. An NOR, notification which shall be given at the time that the vessel arrives at the Arrival Location as defined in the Definitions section of this manual.

III. Each of these notices must also contain the following information and changes:

A. The estimated cargo tank arrival temperature;
B. Any deficiencies in the LNG Vessel that may affect its operation at the Freeport facility;
C. The arrival draft and the expected departure draft of the LNG Vessel;
D. Any additional operational information reasonably requested by FLNG; and
E. The earliest possible estimated time of arrival of the LNG Vessel.

4.1.5 U.S. Coast Guard Notifications

I. Federal Regulations (33 CFR 160.201 – 160.215) require ship’s staff to provide a Notice of Arrival to the USCG COTP at Sector Houston / Galveston, at least 96 hours in advance of the vessel’s arrival. Contact information for this USCG office is contained in Appendix A of this manual. Vessels must meet all USCG requirements for entering Port Freeport.

II. Vessel traffic in the Port Freeport area is monitored by the USCG through the notification communications between the Coast Guard and arriving/departing vessels. However, the USCG does not maintain full voice service contact with vessels operating in and around Freeport.
III. The Notice of Arrival required by the USCG must include a confirmation that all systems required by 33 CFR 164.25 have been tested and proven to be in working order. Should any system required by 33 CFR 164.25 not be in working order, Masters must also make the identification of those systems that are not fully functional.

4.1.6 Brazos Pilots Association

I. LNG vessels entering and departing Port Freeport are required to have two Pilots (hereinafter referred to in the singular) on board. Pilot services are provided by the Brazos Pilots Association.

II. LNG vessels may enter and depart Port Freeport only during daylight hours as defined by the Brazos Pilots Association. The Brazos Pilots Association has established Basic Operating Procedures for vessels entering Port Freeport. These operating procedures include restrictions on the LOA, the Beam and the Draft of vessels which may enter the port.

III. LNG vessels shall meet the requirements of the Brazos Pilots Association Basic Operating Procedures effective as of the date of the arrival of the vessel at Freeport. The current Basic Operating Procedures of the Brazos Pilots Association can be sourced from the vessel’s local agent.

IV. Vessel movement orders are the responsibility of the Terminal User or Transporter or their designee. The Brazos Pilots accept movement orders by telephone only. Requests made by radio (VHF) will not be accepted. A minimum of two (2) hours advance notice is required for vessel arrivals. A minimum of one (1) hour notice is required for routine departures. Unscheduled departure notifications will be facilitated by either the ship’s agent or FLNG Terminal personnel. Contact information for the Brazos Pilots and for tug assist companies is in Appendix A.

4.1.7 Master Pilot Exchange between Vessel Master and Brazos Pilot

I. To ensure the safest possible transit, upon boarding the vessel and getting to the ship’s navigation bridge, the Brazos Pilots will hold the Master Pilot Exchange (MPX) with the Master in accordance with the subject as detailed in the Brazos Pilots Association annual Port Guide.

II. The Pilot will also obtain confirmation that all of the ship’s equipment, as detailed in the U.S. Code of Federal Regulations, 33 CFR 164.25 (a), has been tested and is operating correctly.

III. The Pilot will also verify that the vessel’s bridge VHF radios are set on channels 16 and 14, and will obtain other pertinent information from the Master as the Pilot requires.
4.1.8 Port Freeport

Port entry requirements, procedures and restrictions are the responsibility of the Brazos River Harbor Navigation District, which operates as “Port Freeport”. The Basic Operating Procedures and other information published by the Brazos Pilots reflect the Port Freeport protocols.

Specific information on the port and its operations is available from Port Freeport. Contact information for Port Freeport officials is contained in Appendix A of this manual.

4.1.9 Terminal’s Notifications to Arriving Ships

When a ship is fixed for the delivery or the loading of a cargo at FLNG, as soon as practicable after FLNG has been advised of the incoming ship’s local agent, FLNG will issue ‘Instructions for Arrival’ to the ship, via its agent. This notice will instruct the ship regarding its berthing prospects following its arrival at the Pilot station, general plans for the cargo transfer, Terminal arrangements that have been made for the supervision of visitors to the ship once they have entered the Terminal’s secure area, requirements for PPE while inside the Terminal’s secure area, etc.

In the event that circumstances in the Terminal, in the port or elsewhere change to the degree that it will affect the ship’s berthing prospects following its scheduled arrival, FLNG will provide updated berthing information to the ship via the ship’s own local agent.

When the ship arrives off the port of Freeport and issues its ‘Notice of Readiness’ to the Terminal, FLNG will issue a ‘Notice to Proceed’ to the ship and to its agent. This notice will provide the ship with relevant information regarding its transit from its arrival position to the FLNG Terminal.
4.2 PORT ENTRY INFORMATION

4.2.1 Typical Transit Routes

Freeport Harbor lies approximately 40 miles southwest of Galveston, Texas. The area is known locally as Brazosport because of its location near the mouth of the Brazos River.

Approaches to Freeport Harbor, including the Shipping Safety Fairways, the Freeport Entrance Channel and the Freeport Jetty Channel are depicted on NOAA Charts No. 11321 and 11322. Federal Regulations require that all commercial vessels calling at Freeport, Texas, have these fully updated and corrected charts on board.

4.2.2 Local Navigation Conditions

I. Electronic access to the Coast Pilot is possible through the NOAA Office of Coast Survey website: [http://www.nauticalcharts.noaa.gov/nsd/cpupdates.htm](http://www.nauticalcharts.noaa.gov/nsd/cpupdates.htm)

II. Federal Regulations require that all commercial vessels calling at United States ports along the Gulf of Mexico have this publication on board.

4.2.3 U.S. Coast Guard Boarding Location

The USCG generally boards LNG carriers to perform inspections after the vessel has secured to its berth at the FLNG Terminal. Depending upon the inspection to be performed while the vessel is at the berth, the USCG team may, or may not, permit normal cargo transfer processes (pre-transfer meeting, heel/cargo measurement, bunker surveys, cargo transfer arm connecting, etc.) to be performed. Other non-regulatory agency inspections on board the ship, which are undertaken by organizations not affiliated with FLNG, may be undertaken contingent upon those inspections NOT hindering or delaying the ordinary port operations and cargo transfer procedures to be undertaken by the vessel.

The USCG has advised FLNG that some LNG carriers approaching Freeport, Texas, may be boarded and examined by USCG personnel before the vessel enters the port area.

The form of the examination may vary depending upon what the USCG COTP considers appropriate for a particular vessel. Whatever the selected form of examination, it will include a complete crew identity check involving the verification of ship’s staff’s passports. The USCG boarding party will also check the validity of the vessel’s documents and certificates.

Prior to the USCG embarking the vessel, the USCG team leader will advise the Master to muster the entire crew in one location. The USCG team leader will also advise the Master to place a qualified crew member in charge on the bridge and another in the engine room to maintain the watch to ensure the safe operation of the vessel. It is preferred that the Master is available to the USCG boarding party during the entire boarding and inspection process to answer their questions and to provide requested documentation.

In the event that the vessel is under way when the leader of the USCG boarding party advises the Master that such a crew muster will be performed, the Master is at liberty to
advise the leader of the boarding party of his intent to anchor the vessel prior to the crew muster being performed. The Master may also request to muster only ship’s staff that are non-essential to the safe navigation of the vessel. The USCG team leader may allow this partial muster, as long as they are aware of the location of those ship’s staff that are not at the prescribed muster location.

The USCG has not prescribed a specific offshore location for the boarding.

The USCG personnel may choose to board the vessel before the Pilot boards.

Masters are solely responsible for the safe navigation of their vessels during the entire USCG boarding and inspection process and should not hesitate to inform the USCG boarding party of any unsafe situation which arises and which requires immediate attention. The USCG boarding party’s top priority is the safety of the vessel and its crew. Ship’s staff should contact the USCG COTP Sector Houston-Galveston to determine when and where the USCG boarding will take place. Contact information for the USCG is in Appendix A of this manual.

4.2.4 U.S. Coast Guard Moving Security Zone

Under the U.S. Code of Federal Regulations, 33 CFR 165.818, the USCG COTP Sector Houston-Galveston has established a moving security zone for certain vessels transiting the territorial waters of the USA to Port Freeport. This moving security zone is applicable to all LNG vessels. The moving security zone is applicable from the point at which the LNG vessel crosses from international waters into territorial waters, twelve (12) miles from the coastline, until it secures to the Terminal’s berth. The security zone extends from the surface of the sea to the ocean bed, one thousand (1000) yards (941.4m) ahead of, one thousand (1000) yards (941.4m) astern of and five hundred (500) yards (457.2m) on each side of the LNG vessel. All vessels, to which this moving security zone applies, shall fly the International Signal Flag pennant number five (5), to advise other vessels that a USCG imposed security zone exists around the ship.

4.2.5 Pilot Boarding

The Pilot boat operator monitors VHF Channels 14 and 16 and ship’s staff are required to contact the Pilot Boat on either of these channels for boarding directions. Pilot Boarding Station: One mile southeast of the Freeport Entrance Lighted Whistle Buoy (“FP” Buoy), which is in position:

Latitude:  28° 52’ 30” N  
Longitude:  95° 14’ 12” W

Pilot Boarding Details: The Pilot Boat is approximately 60 ft. long, has a black hull and white superstructure. The word “PILOT” is painted in large black letters on the side of the superstructure.

Vessels are requested to contact the Pilot boat one hour before arrival at the FP Buoy on Channel 14 or 16 for Pilot instructions.
The lowest rung of the Pilot ladder should be rigged 8 ft. (2.5m) above the waterline. If the vessel freeboard is more than 23 ft. (7m), a combination Pilot ladder / accommodation ladder is required.

When boarding, the Pilot ladder shall be located at amidships.

NO man ropes and NO boat ropes shall be utilized.

Pilot boarding speed is 8 knots.

For reference the IMO / International Maritime Pilots’ Association standard placard detailing the rigging of Pilot ladders is shown in Appendix D – Exhibit 2. Vessels must comply with the Brazos Pilots Association Pilot ladder requirements and they differ in minor ways from the standard Pilot ladder arrangements, which differences are detailed immediately above.

4.2.6 U.S. Customs and Border Protection

Freeport, Texas is a U.S. Customs port of entry. Typically, the U.S. Customs and Border Protection board the vessel together with the ship’s agent after the vessel has completed securing to the LNG berth. Contact information is located in Appendix A and all notification and coordination is the responsibility of the Terminal User, Transporter or their designee.

4.2.7 Mooring Line Assistance

Mooring line handling services will be scheduled, coordinated by, and are the responsibility of the Terminal user or its shipping agent. The mooring line pattern to be used for each ship will be established through an Optimoor study to be performed by the ship’s operators and agreed by the Terminal before the ship’s arrival in the port. Following agreement between the ship operators and the Terminal regarding the mooring pattern to be used for the particular ship, the Terminal will distribute each ship’s mooring pattern to the mooring line handlers prior to the ship’s arrival at the Terminal.
5. BERTHING PROTOCOL / PROCEDURES

5.1 TERMINAL OPERATIONAL RESTRICTIONS

The FLNG Terminal is normally open 24 hours a day, 365 days a year, weather and sea conditions permitting. However, it is a policy of the Brazos Pilots that, because of their sizes, all LNG ships will be daylight restricted vessels. At the present time LNG ships may enter and depart Port Freeport only during daylight hours as defined by the Brazos Pilots Association.

Port entry and berthing is always subject to daylight and the prevailing weather. When transiting the port and mooring in conditions of reduced visibility, the decision to move the vessel will be made jointly by the Pilot and the Master. It is expected that they will discuss the prevailing conditions and only move the vessel when they both agree that it is safe to do so.

The following table provides a guide to the status of the Terminal operations as it relates to prevailing wind conditions. These are guidelines; they are not hard and fast rules. At the time that a vessel movement is due to be carried out, should the prevailing wind conditions be complicated by unusual tidal flows, cross currents, or any other environmental, traffic, or other issues, the vessel movement will be contingent upon the agreement of the ship’s Master and the Pilot.

5.2 FLNG MARINE TERMINAL OPERATIONAL STATUS - WIND CONDITIONS

5.2.1 Operating Wind Speed Guidelines

<table>
<thead>
<tr>
<th>Wind Speed</th>
<th>Operational Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 knots (23.0mph)</td>
<td>Terminal open for all operations.</td>
</tr>
<tr>
<td>Greater than 20kts (23.0mph) but Less than 35kts (40.3mph)</td>
<td>All operations already under way shall continue.</td>
</tr>
<tr>
<td>At 35kts (40.3mph)</td>
<td>Cargo transfer to terminate and cargo arms to be drained, purged, disconnected and retracted into their locked position.</td>
</tr>
<tr>
<td>Greater than 35kts (40.3mph).</td>
<td>Vessel to remain at berth. Masters decision to deploy, or not, additional mooring lines. (Line handlers will be required) See Section 5.2.3.</td>
</tr>
</tbody>
</table>
5.2.2 Vessel Departing the Terminal Due to High Winds

Prior to the decision regarding the movement of a vessel as reflected in the table above, the issue will be discussed between the assigned Pilot, the Master and the FLNG Production Manager or his designee.

5.2.3 USCG Sector Hurricane Preparedness Plan

For additional information on the USCG Houston – Galveston Zone preparations at the approach of a hurricane, details of the “Sector Houston – Galveston Storm Preparedness & Response Plan” can be sourced through the ship’s Agent.

5.3 DESCRIPTION OF BERTHS AND DOCKING PROCEDURES

5.3.1 Berth No. 1 Capacity and Configuration

The LNG berth is designed to accommodate ships from 88,000 m³ to 267,000 m³ cargo capacity with maximum dimensions of:

| LOA:        | 1132.8 ft. (345m) |
| Max Beam:   | 180.0 ft. (54.8m) |
| Max Draft:  | 42 ft. (12.8m)    |

**NOTE:** The berth is built to accommodate a ship that is longer and wider than the largest ship that, as of the date of issue of this Manual, is permitted to enter Port Freeport.

The berth is equipped with four (4) breasting dolphins and six (6) mooring dolphins.

The breasting dolphins are numbered BD-1 to BD-4 from the southwest to the northeast. Each breasting dolphin is fitted with a double quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. Every breasting dolphin is equipped with a motorized capstan.

See Appendix D, Exhibit 3, for the Typical Breasting Dolphin plan drawing.

The mooring dolphins are numbered MD-1 to MD-6 from the southwest to the northeast. MD-1, MD-2, MD-5 and MD-6 are each fitted with a quadruple quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. MD-3 and MD-4 are each fitted with a triple quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. Every mooring dolphin is equipped with a motorized capstan.

See Appendix D, Exhibit 4, for the Typical Mooring Dolphin plan drawing.

See Appendix D, Exhibit 5, for the Mooring Diagram showing the layout of the entire LNG berth.
Arriving LNG vessels will be met by their attending tugs outside of the port’s jetties and they will proceed between the jetties to the turning basin which is at the intersection of the channel and the Intracoastal Waterway. They will be stopped in the turning basin and, with the assistance of the tugs, they will be turned, and maneuvered, stern first, into the LNG dock basin and then pushed alongside the berth by the attending tugs.

The berth and cargo transfer systems are designed for LNG carriers to moor starboard side alongside, with the vessel’s bow facing the port’s channel. This is the preferred mooring plan for all vessels at the Berth No. 1.

See Appendix D, Exhibit 6, for the Fender-line Elevation diagram.

See Appendix D, Exhibit 8, for the Dock Fender Performance Diagram.

5.3.2 Berth No. 2 Capacity and Configuration

The LNG berth is designed to accommodate ships from 88,000 m³ to 180,000 m³ cargo capacity with maximum dimensions of:

   LOA:   985 ft. (300.0m)
   Max Beam:  170.6 ft. (52.0m)
   Max Draft:  42 ft. (12.8m)

NOTE: By the regulations of the Brazos Pilot’s, this berth cannot be utilized in the event that a Q-Max vessel is docked at Berth No. 1.

The berth is equipped with four (4) breasting dolphins and six (6) mooring dolphins.

The breasting dolphins are numbered BD-1 to BD-4 from the northeast to the southwest. Each breasting dolphin is fitted with a double quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. Every breasting dolphin is equipped with a motorized capstan.

See Appendix E, Exhibit 3, for the Typical Breasting Dolphin plan drawing.

The mooring dolphins are numbered MD-1 to MD-6 from the northeast to the southwest. MD-1, MD-2, MD-5 and MD-6 are each fitted with a quadruple quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. MD-3 and MD-4 are each fitted with a triple quick-release hook assembly. Each hook in the assembly is rated at 150t SWL. Every mooring dolphin is equipped with a motorized capstan.

See Appendix E, Exhibit 4, for the Typical Mooring Dolphin plan drawing.

See Appendix E, Exhibit 5, for the Mooring Diagram showing the layout of the entire LNG berth.
Arriving LNG vessels will be met by their attending tugs outside of the port’s jetties and they will proceed between the jetties to the turning basin which is at the intersection of the channel and the Intracoastal Waterway. At the turning basin, with the assistance of the tugs, they will be turned to Port and be maneuvered bow first into the LNG dock basin and then pushed alongside the berth.

The berth and cargo transfer systems are designed for LNG carriers to moor starboard side alongside, with the vessel’s bow facing the back of the dock basin. This is the preferred mooring plan for all vessels at the Berth No. 2.

See Appendix E, Exhibit 6, for the Fender-line Elevation diagram.

See Appendix E, Exhibit 8, for the Dock Fender Performance Diagram.

5.3.3 Mooring Line Handling

The line-handling supervisor on the berth will be in direct communication with the Pilot on the vessel’s bridge. The Pilot, in consultation with the Master, will direct the order in which the ship’s mooring lines are passed to the mooring and berthing dolphins. The Terminal has pre-positioned messenger lines on each mooring dolphin which will be passed to the vessel by using the vessel’s heaving lines. Mooring lines will be passed from the ship to the mooring and breasting dolphins in accordance with the Master’s instructions and the Pilot’s advice.

FLNG requires that vessels are secured at the berths with a minimum of eight (8) mooring lines at the bow, and eight (8) mooring lines at the stern, two (2) of which, at both the bow and stern, shall be spring lines.

5.3.4 Spotting the Vessel on the Berth

FLNG requires that a ship’s officer be stationed at the vessel’s vapor connection to communicate with the ship’s bridge team and the FLNG representative at the vapor cargo arm for ensuring the correct spotting of the vessel on the berth.

5.4 BERTH EQUIPMENT

5.4.1 Approach Speed Indicator Board

Each berth is equipped with an approach speed indicator board to aid in vessel alignment and to indicate the speed of approach of the ship to the berth. The indicator boards are erected on the Mooring Dolphins Nos. 3 (MD-3) on each berth and can be rotated to face the position of the incoming ship’s bridge.

At both berths, the maximum permitted approach speed of the ship to the fenders is 15 cm. per sec.
At both berths, the maximum permitted angle between the ship’s side and the fender-line for landing the vessel on the fenders is ten (10) degrees.

5.4.2 Mooring Line Tension Monitoring

The system installed at FLNG for mooring line tension monitoring data transfer between the berth and the vessel is the Trelleborg system which uses radio communication to transfer the data between the dock and the vessel. On the moored vessel, the information is displayed on an FLNG-supplied laptop computer which is equipped with its own external aerial. The laptop computer and its external aerial will be brought aboard each LNG vessel by a Terminal representative during the pre-cargo transfer meeting.

The Terminal PIC in the DCR also monitors the mooring line tension data on the DCR’s control panel.

5.4.3 Ship-to-Shore Communications Links

Both FLNG berths are equipped with two umbilical type Ship – Shore Link systems which are both manufactured by SeaTechnik. Each dock has a fiber optic system and an electric
system. The fiber optic system is the primary system and the electric system is the back-up system. Both systems are configured for voice/telephone communications and for ESD signal communications. The Terminal’s “hot-line” telephone for both of these systems is located in the Dock Control Room. These systems do not transfer mooring line tension monitoring data between the berths and the vessels.

The fiber optic systems are compatible with the Sumitomo-Furukawa system. The Terminal’s FO cable connectors mate physically and optically with the six-way Furukawa connector and the system’s signals are compatible with all shipboard Furukawa systems.

The electrical systems utilize the Pyle National 37 Pin connector for coupling to the vessels.

The pin placement for the functions of the Pyle National systems on both berths is tabulated below:

<table>
<thead>
<tr>
<th>Pin Numbers</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 and 6</td>
<td>Hot-line telephone</td>
</tr>
<tr>
<td>9 and 10</td>
<td>Terminal telephone</td>
</tr>
<tr>
<td>13 and 14</td>
<td>ESD Shore to Ship</td>
</tr>
<tr>
<td>15 and 16</td>
<td>ESD Ship to Shore</td>
</tr>
</tbody>
</table>

5.4.4 Failure of Ship-to-Shore Voice Communications

I. In the event of any failure of the hot-line voice communication system between the vessel’s CCR and the Terminal’s DCR, voice communications will default to communications via the handheld radios carried by the PIC in the DRC and the Terminal’s representative stationed in the vessel’s CCR throughout the vessel’s stay at the berth. Any shipboard operations that are ongoing if the hot-line voice communications fail, including cargo transfer operations, will be stopped immediately until either the hot-line voice communications link is re-established through one or the other of the umbilical systems, or agreement is reached between the vessel and the Terminal to rely on handheld radios for voice communications.

II. In the event that a vessel detects that hot-line voice communications and handheld radio communications between the vessel CCR and the Terminal’s DCR fail at the same time during cargo transfer operations, that vessel shall signal the Terminal that cargo transfer operations will immediately be stopped by giving one prolonged blast on the ship’s whistle/fog horn.

III. In the event that the Terminal detects that hot-line voice communications and handheld radio communications between the Terminal DCR and a vessel’s CCR fail at the same time during cargo transfer operations, the Terminal shall signal that vessel that cargo transfer operations will immediately be stopped by advising the vessel of the stoppage through the use of the voice loud hailer system installed on the berth. The stoppage signal will be the word ‘STOP’ repeated three times over the loud hailer at full volume.
IV. This failure of communications systems plan will be confirmed between the Terminal’s PIC and the vessel’s PIC at the pre-cargo transfer meeting.

V. In the event of the failure of a voice communications system that causes the stoppage of cargo transfer, the transfer process will not be resumed until effective ship/shore voice communications have been re-established and tested to verify their ongoing reliability.

5.4.5 Cargo Arms

The cargo arms on both berths are manufactured by SVT of Germany. All are fitted with PERCs. The securing mechanisms for connecting the arms to the vessel’s manifold are cam-locks. The connection flanges are flat faced and utilize three concentric SVT customized “O” ring type seals on each flange. It is recommended that, in order to avoid any possible damage to the vessel’s manifold connecting flanges, a short spool piece, to which the arms can be connected, be fitted outboard of all vessels’ cargo and vapor manifold pipe connecting flanges. It is further recommended that vessels arrive at the Terminal with manifold spool pieces that have non-serrated, flat faced presentation flanges with a flange surface finish that is smoother than 3.2 RA”. Vessels must provide their own spool pieces.

Cargo arms on both berths are spaced on 4.0m centers.

All cargo arms are fitted with insulating flanges.

**At Berth No. 1**, from the southwest to the northeast the cargo arms’ numbered designations and services are as follows:

<table>
<thead>
<tr>
<th>Designation</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA-1C</td>
<td>Liquid</td>
</tr>
<tr>
<td>LA-2</td>
<td>Vapor</td>
</tr>
<tr>
<td>LA-1B</td>
<td>Liquid/Vapor hybrid</td>
</tr>
<tr>
<td>LA-1A</td>
<td>Liquid</td>
</tr>
</tbody>
</table>

For the avoidance of doubt, when the vessel is berthed Starboard side alongside, cargo arm LA-1C will be closest to the stern of the vessel and cargo arm LA-1A will be closest to the bow of the vessel.

See Appendix D, Exhibit 7, for the PROFILE view of the Cargo Arm Operating Envelopes at Berth No. 1.

**At Berth No. 2**, from the southwest to the northeast the cargo arms’ numbered designations and services are as follows:

<table>
<thead>
<tr>
<th>Designation</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>18LA-21A</td>
<td>Liquid</td>
</tr>
<tr>
<td>18LA-21B</td>
<td>Liquid/Vapor hybrid</td>
</tr>
<tr>
<td>18LA-22</td>
<td>Vapor</td>
</tr>
<tr>
<td>18LA-21C</td>
<td>Liquid</td>
</tr>
</tbody>
</table>
For the avoidance of doubt, when the vessel is berthed Starboard side alongside, cargo arm 18LA-21C will be closest to the stern of the vessel and cargo arm 18LA-21A will be closest to the bow of the vessel.

See Appendix E, Exhibit 7, for the PROFILE view of the Cargo Arm Operating Envelopes at Berth No. 2.

5.4.6 ESD 1 Valves

The closing times of the ESD 1 valves on both docks is in accordance with the SIGTTO recommended closing times.

5.4.7 Gangways

Both berths are equipped with a pedestal-mounted, telescopic, self-leveling tread, gangway. Each gangway requires a landing area of about 1.85 sq. m.

The gangway on both berths is forward of the ship’s manifold when the ship is berthed Starboard side alongside.

See Appendix D, Exhibit 9, for the layout and operating limits of the gangway at Berth No. 1.

See Appendix E, Exhibit 9, for the layout and operating limits of the gangway at Berth No. 2.

5.4.8 Bonding Cable

In accordance with guidelines of ISGOTT, a bonding cable is not used at the Terminal.

5.4.9 Fire Wires

Ship’s fire wires are not required at the Terminal’s docks.

5.5 STANDBY TUG

Freeport LNG requires that one tug with fire-fighting water cannon capability, rated at FiFi 1, remain on station close to the Terminal for immediate response to a call by the ship or the Terminal for the entire time that the LNG carrier is at the berth. If there are two LNG ships alongside the berths simultaneously, each ship must have its own dedicated attending tug.
5.5.1 Communications – Ship to Stand-by Tug

Masters of LNG vessels are advised that, following the completion of docking operations at the Terminal, they should establish contact with the tug fleet which assists with the ship’s docking and un-docking operations, to identify the specific tug that has been assigned the stand-by duties for their particular ship. Vessel Masters should establish a communications protocol with the stand-by tug Master in order to facilitate ease of communications between ship and tug should emergency tug assistance become necessary during the ship’s port call.

5.6 SECURITY ZONE

Under the U.S. Code of Federal Regulations, 33 CFR 165.814, the USCG COTP Sector Houston-Galveston has established a security zone that encompasses the entire Freeport LNG dock basin. The only vessels that are legally allowed to enter this security zone are commercial vessels transiting to or from other waterfront facilities within Port Freeport or commercial vessels providing logistic support to LNG vessels such as Pilot vessels, tugs, storing launches and barges, etc.

5.7 INTERNATIONAL SHORE CONNECTION

International Shore Connections and the valves controlling the flow of water to them are located on the uppermost platform of both docks’ gangway towers. The Terminal’s fire main is always pressurized.
In addition to the International Shore Connection at each dock, both docks are equipped with elevated firewater monitors, one on each of the outer corners of each of the jetty heads. These monitors are elevated to the level of the vessels’ main decks and are remotely controlled from the respective dock’s DCRs. Targeting of the discharge from these water cannons is performed utilizing the Terminal’s closed circuit video camera system.

5.8 RECEIPT OF STORES AND DELIVERIES

5.8.1 Bulk Deliveries

Bulk deliveries of stores, galley provisions, spare parts, etc., may ONLY be made to LNG vessels by launch or barge on the outboard side of the berthed LNG vessel. No vessels, launches or barges are permitted to secure to the outboard side of a berthed LNG vessel while the berth’s cargo arms are connected to the LNG vessel. In accordance with the Terminal’s USCG approved Security Plan, deliveries to an LNG vessel may NOT be made at MARSEC Levels Two (2) and Three (3) without the express permission and approval of the USCG.

Vessels’ Masters must provide the Terminal with at least two (2) hours notice of the arrival of any launch, boat, barge, or water craft calling at the ship for any purpose. As stated in Section 5.6 above, the Freeport LNG dock basin is a USCG security zone. Consequently the Terminal is required to notify the USCG at least two (2) hours before the planned arrival of any launch, boat, barge, or water craft that will be entering the dock basin to service any needs of the berthed LNG vessel. Masters must therefore provide the required notification to the Terminal of the planned arrival of any water craft servicing their ship. Bulk deliveries of stores or materials by road vehicle are not allowed while the vessel is at the Terminal. The FLNG berth is not equipped with any installed lifting equipment and therefore does not have the capability to assist in the transfer of vessel stores and supplies.

5.8.2 Deliveries of Small Quantities of Stores, Supplies or Equipment

Deliveries of small quantities of stores, supplies or equipment parts that do not require special handling and that can be hand-carried by ship’s staff up the gangway are allowed during daylight hours upon specific authorization by the Production Manager or his designee. The Terminal security staff will be responsible for searching personnel and packages entering the facility or items to be transferred across the marine Terminal. It is the responsibility of the Terminal user to ensure all documentation and manifests are prepared and in compliance with all applicable regulations. In accordance with the Terminal’s USCG approved Security Plan deliveries may NOT be made at MARSEC Levels Two (2) or Three (3) without the express permission and approval of the USCG.
5.9 BUNKERING

Fuel oil transfer from a bunker barge to an LNG ship is not allowed at the Terminal.

Potable and/or fresh water bunkers are not available from the Terminal. Water can only be supplied to an LNG ship by barge after the cargo arms have been disconnected from the ship’s manifold at the completion of cargo transfer operations. Arrangements for the delivery of water bunkers must be made through the ship’s agent. In accordance with the Terminal’s USCG approved Security Plan, at MARSEC Levels Two (2) and Three (3) specific permission must be obtained from the USCG for the delivery of water to the ship by barge.

Liquid nitrogen is not available from the Terminal.

5.10 REPAIRS

There are no ship repair facilities at the Terminal. Vessels may perform routine maintenance and inspection procedures while at the Terminal, but they shall not perform any maintenance on any control or propulsion system that could compromise the vessel’s maneuverability in any way. In the event of the failure of any of the vessel’s control or propulsion systems that occurs after the vessel has secured to either of the FLNG docks, the vessel’s Master shall advise the Terminal, as soon as possible after the system failure has been detected, of the details of this equipment failure together with the plan to make repairs to the failed system and an estimate of the time it will take to return the vessel’s failed system to full operational readiness. All of a vessel’s maneuvering control and propulsion systems, ordinarily utilized by the vessel when entering or departing Port Freeport and while secured to either of the FLNG docks, must be in full operating condition at all times. Vessels must be in a seaworthy condition, as defined by SOLAS, before they depart FLNG’s facility to proceed to sea.

5.11 DISCHARGE OF BALLAST WATER

There are no facilities available at the Terminal for on-shore reception or disposal of ballast water. All ballast water is discharged into the FLNG dock basin. While at the Terminal, vessels must control their ballast to provide sufficient trim for efficient steering and maneuverability, in case the ship must depart the berth while partially loaded or discharged.

5.12 HANDLING OF NON-BALLAST OILY WASTE AND GARBAGE

FLNG has no facilities for receiving or handling ship’s waste. All waste transfers are to be conducted on the outboard side of the vessel onto a barge provided by the identified waste handlers. Contact information for some local waste handling and disposal services is listed in Appendix A.
Vessels’ Masters should contact their local agents no later than twenty four (24) hours before arrival at the Freeport Pilot station to arrange for oily waste and/or garbage disposal services to attend at the ship. Masters should also advise their agents of the type of garbage, the type of garbage transfer packaging necessary for its handling and/or the volume of oily waste to be discharged.

Oily waste and garbage must meet all federal, state and local regulations for port discharge and disposal. Details of federal, state and local regulations are available via the ship’s local agents.

Transfer of garbage and oily waste may not be conducted while the berth’s cargo arms are connected to the LNG vessel, and for security purposes transfer of garbage and oily waste must be approved by the Production Manager or his designee. Transfer of garbage and oily waste may be carried out at MARSEC Level 1 as specified above. In accordance with the Terminal’s USCG approved Security Plan, at MARSEC Levels Two (2) and Three (3) specific permission must be obtained from the USCG for the transfer of garbage and oily waste from the ship to a waste disposal barge.

5.13 CREW: SHORE LEAVE AND CREW CHANGE

Shore leave is allowed subject to the approval of the USCG and the U.S. Customs and Border Protection Agency. The Terminal User or Transporter or their designee will be responsible for and assist in all vessel personnel logistics, crew transfer and assignments. All vessel personnel will be required to pass through FLNG security when entering and leaving the facility. The Terminal security staff will be responsible for searching personnel, vehicles and packages entering the facility or items to be transferred across the marine Terminal.

**Berth No. 1 Dock**

By U.S. federal regulations, all ship’s staff walking between the vessel and the nearest Terminal gate, Gate No. 10, must be escorted by Terminal security personnel. Gate No. 10 is approximately 150 meters from the gangway.

Ship’s staff departing the ship and those joining the ship are expected to walk with their belongings/baggage from Gate No. 10 to the dock gangway.

**Berth No. 2 Dock**

By U.S. federal regulations, all ship’s staff traveling between the vessel at this dock and the nearest Terminal gate, Gate No. 10, must be transported in a Terminal operated vehicle. This transport will take ship’s staff directly to Gate No. 10. Ship’s staff returning to their vessel will wait outside of Gate 10 until the transport vehicle arrives at the gate to transport them back to the ship.

Ship’s staff departing the ship and those joining the ship are to be transported by the same Terminal operated vehicle with their belongings/baggage between the gangway and Gate No. 10.

Taxis are not allowed inside the perimeter fence of the Terminal.
6. CARGO TRANSFER PROCEDURES

6.1 CARGO TRANSFER

6.1.1 Overview

As a time saving measure, vessels are requested to arrive at their assigned docks with their deck cargo lines cold and drained back to the cargo tanks. However vessels may choose to arrive with deck cargo lines at ambient temperature. After an LNG vessel is securely moored, the cargo transfer procedure starts. The cargo transfer operation is under supervision of the PIC for that particular dock. In the FLNG chain of command, the Terminal’s PICs report to the Shift Supervisor, who reports to the Operations Superintendent who reports to the Production Manager. In addition to the dock PIC on duty in the DCR, there is a Terminal representative on duty in the vessel’s CCR throughout the cargo transfer operation. The Terminal representative on duty in the vessel’s CCR is in communication with the dock’s PIC via the Terminal’s handheld radios.

Vessels are required to use their manifold cargo strainers when calling at the Terminal following a dry dock period or any other period when the cargo tanks or ship’s cargo pipelines have been opened for maintenance or repair.

Vessels will be requested by the Terminal to utilize their manifold cargo strainers whenever the Terminal cargo transfer pipeline or cargo transfer arms have been opened for maintenance or repair immediately prior to the arrival of a ship at the particular dock. Strainers no finer than 200 mesh shall be provided by vessels and fitted by the ship’s crew in each of the nominated liquid manifold lines for start-up / initial Terminal LNG transfer, after major maintenance periods or at other times when debris may be expected in either the ship’s cargo tanks or cargo lines or in the Terminal’s loading lines.

Vessels are permitted to utilize boil off gas (BOG) while at the FLNG facility only if the vessel is equipped with a gas measurement meter system, suitably certified by a relevant classification authority, and gas meter readings taken at the time of the opening custody transfer measurement and again at the closing of the custody transfer measurement to quantify the gas used by the vessel during the ship to shore or shore to ship cargo transfer operation.

6.2 TRANSFER PROCEDURES/PRE-TRANSFER MEETING

The transfer procedures will be discussed in detail by the Terminal’s PIC assigned to that particular dock and the vessel’s PIC at the pre-transfer meeting in the vessel’s office. During the same meeting the various safety and security checklists and declarations will be completed and signed by the PIC and the PIC for the vessel.

LNG transfer operations are controlled and monitored by the dock’s PIC from that dock’s DCR. The operations are also monitored from the facility’s MCR which is centrally located in the Terminal complex.
6.3 DEPLOYMENT OF CARGO ARMS

The LNG cargo arms are extended and retracted using the controls at either the fixed control panel situated on the uppermost platform of the berth structure or through use of a wireless portable control unit. These portable units are stored in the DCRs.

6.4 CONTROLS

6.4.1 Dock Operation Controls

The operation of the cargo arms, gangway and the ship-to-shore communication umbilical’s are the responsibility of the PIC. During cargo transfer the PIC is stationed in the DCR monitoring all parameters of the cargo transfer through the installed control instrumentation and communication systems.

Mooring hooks are ordinarily operated manually by the mooring line handlers, locally at the hooks. However the mooring hooks can be released remotely by the PIC utilizing the control system in the DCR.

The fire pumps serving the docks are started on pressure demand, i.e. if the pressure in the fire main drops, the fire pump starts automatically. The berth mounted fire water cannons are controlled remotely by the PIC from the DCR, and targeted by use of the CCTV dock monitoring system.

The DCR is equipped with a plant-wide phone system and handheld radios for use in contacting operations personnel when they are away from their telephones.

6.4.2 Terminal Controls

Overall Terminal operations are controlled from the MCR.

The Marine Transfer Area for LNG is under the supervision of the PIC stationed in the DCR, in accordance with 33 CFR 127.319 (a) (1).

6.5 TERMINAL MONITORING

6.5.1 Security

There are CCTV cameras at a number of locations throughout the Terminal through which activities within and around the Terminal are monitored. The images from the cameras are displayed in both the control rooms and in the Terminal’s security office.
6.5.2 Local Weather

The prevailing weather conditions are monitored by the PICs in both DCRs via a weather display monitor with an electronic feed from the Terminal’s own weather station, mounted above each DCR. The wind conditions in which cargo transfer operations are conducted are defined in Section 5.2.1.

6.5.3 Short Range Weather

FLNG has contracted with ImpactWeather Inc. to provide continuous, real-time regional weather alerts to the Terminal. The data reported to the Terminal security and safety officer includes the proximity of electrical storms to the Terminal. A warning is provided to the Terminal when any electrical discharges from storms broach the ten (10) mile radius circle around the Terminal. In this event, when cargo transfer operations are progressing, a warning will be given to the vessel by the Terminal’s PIC of the storm’s proximity and the storm’s projected direction of travel will be monitored by the Terminal. Should the projected path of the storm bring it into closer proximity with the Terminal, a notification will be given to the ship(s) advising that the cargo transfer may be temporarily stopped until the passage of the storm, after which the cargo transfer will resume.

6.6 POST CARGO TRANSFER DOCUMENTATION

LNG transfer documentation and records are completed post transfer. Documentation is in accordance with the individual Terminal use agreements (LTAs, TUAs and SPAs) and their respective applicable terms and conditions.
7. EMERGENCIES

7.1 FREEPORT LNG EMERGENCY RESPONSE PLAN

7.1.1 Regulatory Compliance

It is the policy of FLNG to comply with all applicable federal, state and local laws and regulatory requirements through the incorporation of the applicable requirements into FLNG policies and procedures. FLNG management expects all employees and contract personnel to adhere to company procedures and practices, which are communicated to all employees and contract personnel through training programs and performance management systems.

The Terminal’s Emergency Response Plan (ERP) has been prepared in consultation with the U.S. Coast Guard, the Federal Energy Regulatory Commission, DOT-PHMSA, and state and local agencies. The principal requirements incorporated into the ERP are found at:

I. Section 311 of the Energy Policy Act of 2005

II. Conditions 76 and 77 in the Order Issuing Authorization under Section 3 of the Natural Gas Act for the construction of Phase 2 of the FLNG Terminal issued by the Federal Energy Regulatory Commission (FERC) on September 26, 2006 in Docket No. CP05-361-000


7.1.2 Purpose

The purpose of the ERP is to provide an effective operational plan that sets forth FLNG’s policies and procedures to respond to emergencies within the FLNG Terminal, emergencies that could affect the public adjacent to the FLNG Terminal and emergencies that could affect the public along the LNG vessel transit route.

7.1.3 Scope

The ERP addresses situations and conditions that require activation of FLNG’s ERP in order to contain and control emergencies. It provides general guidelines and procedures for responding to emergencies within the Terminal.
7.1.4 Objective

The objective of the ERP is to give clear guidelines to FLNG staff and contractors, public officials and emergency responders, and the public in the event of an emergency in order to:

I. Be informed of FLNG plans and the Incident Command Structure used during an emergency at the Terminal.
II. Ensure efficient and effective steps are taken to safely secure the Terminal thereby preventing public and personnel injuries, minimizing the impact on the environment and protecting the physical assets.
III. Ensure that a formal communication structure is in place with relevant internal and external parties and governmental authorities in order to report and co-ordinate activities to ensure all parties are properly informed and updated on the steps taken to effectively handle the emergency.
IV. Conduct tactical direction (applying tactics appropriate to strategy, assigning the right resources and monitoring performance).
V. Initiate investigation into incidents with proper consideration of forensic evidence.
VI. Expedite the return of the asset to normal safe Terminal operation.

7.2 EMERGENCY SITUATIONS AT THE LNG BERTHS

7.2.1 General

An emergency at the LNG berths could be in the form of any one of a host of possible situations, be it on the vessel or on a berth. Each emergency requires responses particular to its own characteristics. The Terminal’s USCG inspected and approved Emergency Response Manual contains details of specific responses to specific emergencies in the Terminal. LNG vessels each have their own Emergency Response Manuals that contain response information specific to the particular ship.

This FLNG manual provides only guidelines as to what is expected of vessels, should an emergency occur while an LNG vessel is berthed.

7.3 EMERGENCY ON A VESSEL

7.3.1 Actions by the Vessel

If an emergency occurs on a vessel at the berth, the vessel must raise the appropriate alarm for the vessel that is recognized by its crew. At the sounding of the alarm all cargo and ballast transfer operations must be stopped and the ship’s main engines and steering gear brought to a readiness condition.

Responsibility for responding to the emergency on the vessel is that of the ship’s Master or his/her designated representative if he/she is not on the vessel. The same emergency response organization that the ship uses for an emergency when the ship is at sea will be used for responding to the similar emergency on the ship when it is in port.
It is the Master’s responsibility to decide if preparing to drain and disconnect the cargo arms from the ship’s manifold, or to request the Terminal to initiate an ESD 2 / PERC activation / cargo arm disconnection, is a necessary part of the response to a particular emergency. The stand-by tug will be called by the vessel to come into close proximity with the vessel to be available to respond in any way that the ship’s Master may deem practicable. This tug is always at the disposal of the LNG vessel’s Master.

7.3.2 Actions by the Terminal

On detecting the ship’s alarm, if there is any delay in the stoppage of cargo transfer, the PIC in the DCR should manually activate an ESD 1 and immediately report the situation to the MCR. The Terminal will thereafter take emergency response action in accordance with its Emergency Manual, as deemed necessary. This could include summoning the local emergency services.

7.3.3 Preparations for Evacuation

The berth areas of FLNG have clearly signposted personnel muster areas. In the event that evacuation of a docked ship becomes necessary, the ship’s crew will evacuate the ship via the Terminal’s gangway and muster at the FLNG personnel muster station. If the particular emergency precludes the use of the Terminal gangway the secondary evacuation routes for the ship’s crew will be by the ship’s outboard lifeboat or the outboard accommodation ladder to a rescue craft.

7.4 EMERGENCY ON THE BERTH

7.4.1 Actions by the Vessel

If an emergency on the berth is detected by the vessel’s crew, the vessel must immediately report the emergency to the DCR via the phone hot-line, handheld radio or most expeditious method available. Although certain emergencies on the berth will more than likely automatically trigger an ESD 1 event, should cargo transfer still be ongoing when the ship detects the emergency, all cargo and ballast transfer operations must be immediately stopped. The ship’s main engines and steering gear must be brought to an instant readiness condition. The ship’s crew must be ready to drain and assist with the disconnection of the cargo arms from the manifold if it is deemed necessary by either the ship’s Master or by the Terminal’s PIC and if it is safe to do so.

Responsibility for responding to an emergency on the berth is that of the Terminal. The vessel’s Master must assess the likelihood of the emergency effecting the vessel and take appropriate action to protect the crew, cargo and vessel. The Master’s action could include requesting the Terminal to initiate an ESD 2 / PERC activation / cargo arm disconnection.

The Master of the vessel should keep in mind that the stand-by tug is available to assist in any way that is deemed necessary and feasible. The tug can be called by the vessel at any time to assist as may be appropriate for the particular emergency.

[10/24/18]47
7.4.2 Actions by the Terminal

On detecting the emergency on the berth, if the cargo transfer is still ongoing, the PIC in the DCR should manually activate an ESD 1 and immediately report the situation to the MCR. The Terminal will thereafter take emergency response action in accordance with its Emergency Manual, as deemed necessary. This could include summoning the local emergency services.

7.4.3 Preparations for Evacuation

The berth areas of FLNG have clearly signposted personnel muster areas. In the event that evacuation becomes necessary the Terminal personnel will muster at that location. The ship’s Master must assess the emergency and decide if evacuation of the ship’s crew or taking his vessel off the berth and out of harm’s way is his best course of action. If the particular emergency on the berth impacts the vessel and prevents its departure, while at the same time precluding the use of the Terminal gangway as a route for evacuating the ship’s crew from the vessel, the secondary evacuation route for the ship’s crew will be by the ship’s lifeboat(s).

7.5 EMERGENCY ELSEWHERE IN THE PORT

7.5.1 Actions by the Vessel and Terminal

If an emergency is detected at another Terminal within the port of Freeport, the LNG vessel’s Master should immediately have the ship’s main engines and steering gear brought to a state of instant readiness and to summon the attending tug(s) to come alongside the vessel.

Thereafter the Terminal management will consult with the ship’s Master in monitoring the emergency to assess the likely threat to which the LNG vessel may become exposed. Actions taken to ensure the safety of the ship’s crew, Terminal personnel, the ship and the cargo may include stopping cargo transfer, disconnecting the cargo arms and taking the vessel off the berth and sending her to sea.

Any decision to take the vessel out of the port must be coordinated with Port Freeport and the Brazos Pilots Association.
8. DEPARTURE PROTOCOLS / PROCEDURES

8.1 PREPARING FOR DEPARTURE

8.1.1 Daylight Restrictions

LNG vessels may depart Port Freeport only during the hours of daylight. The hours of daylight are defined and published by the Brazos Pilots Association and vary with the seasons. Furthermore, departure of a vessel is always contingent upon other marine traffic in the Port as well as the prevailing environmental conditions being within acceptable limits in order to ensure the safe movement of the vessel from the berth to the sea buoy.

8.1.2 Pilots

Pilots must be ordered no later than two (2) hours before the vessel’s intended departure time. If the order for the Pilot is placed a significant time before the two (2) hour Pilot order deadline, vessel Masters should ensure that the Pilot order is reconfirmed two (2) hours before the intended departure time.

Should there be a conflict as a result of other vessels planning to depart Port Freeport at the same time as requested by the LNG vessel, the Pilots will determine the order of departure.

It is a general guideline of the Brazos Pilots Association that departing vessels will have transit priority over arriving vessels.

8.1.3 Vessel Engine Room Preparations

Steamships are permitted to keep their main engine turbines’ turning gear engaged while secured to the FLNG docks.

If equipped with an auto-spin system, steamships are permitted to utilize the system for preparing their main engine turbines for departing from the terminal only if the Master agrees to the Terminal’s requirements for using this system.

The Terminal’s requirements are as follows:

1. Prior to the initiation of the auto-spin process all cargo arms must have been disconnected from the vessel’s cargo manifold and retracted to their stored positions.
2. Prior to the initiation of the auto-spin process the ship-shore communications umbilical must have been disconnected from the ship and retrieved onto the dock.
3. Prior to the initiation of the auto-spin process a minimum of three (3) of the vessel’s contracted tug service provider’s tugs must be in attendance at the ship and be secured to the ship with the tug’s own towing line.
4. Prior to the initiation of the auto-spin process all of the ship’s mooring lines must have been verified by the duty deck officer to be tight.
5. Prior to the initiation of the auto-spin process a deck officer of the ship’s crew must be on duty on the ship’s navigation bridge to observe any possible movement of the ship when the auto-spin is initiated. The officer must remain on the bridge throughout the operation of the system, to observe and report on any movement of the ship along the dock.

6. Throughout the time of the operation of the auto-spin system an engineering officer of the ship’s crew must be in the engine control room monitoring the operation of the auto-spin system and the engineering officer must be in contact with the deck officer on the ship’s navigation bridge.

7. During the operation of the auto-spin system, should the ship start moving along the dock, the deck officer on the ship’s navigation bridge must instruct the engineering officer in the engine control room to immediately stop the operation of the system and must instruct the attending tugs to hold the ship in place.

This list of these Terminal’s ‘Conditions of Use of Auto-Spin’ will be provided, at the cargo pre-transfer meeting between the Terminal’s Person In Charge (PIC) and the ship’s cargo officer / ship’s PIC, to every vessel that requests to use the system.

8.1.4 Cargo Arm Draining, Purging and Disconnection

At the completion of cargo transfer, Terminal personnel will attend at the ship’s manifold for the draining and purging of the cargo arms. A ship’s officer shall attend at the manifold to coordinate the ship’s part in disconnecting the cargo arms. The secondary arm of the cargo arm will first be drained to the ship. The primary arm of the cargo arm will then be drained to the shore. After draining and purging to 2% by volume of hydrocarbon gas, vented from the sample spigot of the cargo arms, they will be disconnected from the ship’s manifold by Terminal personnel and retracted to their stowed position.

8.1.5 Ship-to-Shore Data Communication Devices and Gangway

Unless the Ship-to-Shore hot-line telephone connection must be maintained for some justifiable reason, under normal operating conditions the FLNG Terminal berth operating personnel will remove the umbilical from the vessel’s receptacle after the cargo arms have been disconnected from the ship’s manifold. Ship-to-Shore communications will thereafter be maintained through the Terminal representative stationed in the vessel’s CCR. The Terminal representative will be equipped with one of the Terminal’s hand-held radios.

On completion of post cargo transfer paperwork FLNG personnel will collect the Terminal’s mooring line tension monitoring system laptop computer from the ship’s CCR. After all personnel traffic between ship and shore ceases, FLNG personnel will remove the gangway from the ship’s deck in readiness for the vessel’s departure.
8.2 DEPARTING

8.2.1 Tugs

The tug requirements as specified in Section 2.5 will be utilized upon departure.

8.2.2 Mooring Line Handlers

The Terminal personnel and the line-handling supervisor and crew will await instructions from the Pilot to begin releasing the mooring lines. The mooring lines will be released in accordance with the orders and requirements of the Pilot.
APPENDIX A
FREEPORT AREA ORGANIZATIONS’ CONTACT INFORMATION

1. Port Freeport
   Executive Offices
   1100 Cherry St.
   Freeport, TX 77541-5863
   Phone: 979-233-2667
   Fax: 979-233-5625
   www.portfreeport.com

   Port Freeport Terminal
   1001 Navigation Blvd
   Freeport, TX 77541-5863
   Phone: 979-233-2667

2. Brazos Pilots Association
   Office address
   2502 Deep Sea Drive
   Freeport, TX 77541
   Phone: 979-233-1120

   Mailing address
   P.O. Box 1076
   Freeport, TX 77542

   VHF Channel 14 & 16
   www.brazospilots.com

3. U.S. Coast Guard (Marine Safety Unit Galveston)
   3101 FM 2004
   Texas City, Texas 77591
   Phone: 409-978-2702
4. U.S. Coast Guard Sector Houston-Galveston COTP Office

   USCG Sector Houston-Galveston
   13411 Hillard St,
   Houston, TX 77034,
   Switchboard: 281-464-4800
   Emergency: 281-464-4854
   Fax: 281-464-4814
   VHF Channels 16 and 21

5. U.S. Coast Guard (Freeport Station)

   823 Coast Guard Drive
   Freeport, TX  77541
   Phone: 979-233-7551
   Fax: 979-233-7551
   VHF Channel 16

6. U.S. Customs and Border Protection

   575 Pete Schaff Blvd
   Freeport, TX  77541
   Phone: 979-233-3004
   Fax: 979-233-8661

7. U.S. Immigration and Customs Enforcement

   601 Rosenberg, Suite 515
   Galveston, TX  77550
   Phone: 409-766-3581

8. Tug Services

   Suderman & Young Towing Co.
   2777 Allen Parkway
   Houston, Texas 77019
   Phone: 409-763-2428

       G & H Towing Company
       200 Pennzoil Road
       P.O. Drawer 2270
       Galveston, Texas 77553
       Galveston office- Phone: 409-744-6311
       Houston office-Phone: 281-474-9501
9. Shipping Agencies

GAC
226 West Park Avenue
Freeport, Texas 77541
Phone: 979-233-3208

Moran Shipping Agencies, Inc.
122 West Way, Suite 402
Lake Jackson, Texas 77566
Phone: 979-297-9143

Biehl & Co.
1201 North Avenue H
Freeport, Texas 77541
Phone: 979-233-0445

Norton Lilly International
1341A Pine Street
Freeport, TX 77541
Phone: 281-470-2156 - Office
Phone: 832-707-7034 - Mobile
Fax: 281-582-7803
E-mail: Fpo-ops@nortonlilly.com

10. Launch Services

Freeport Launch Services
1201 E. Brazos Street
Freeport, TX 77541
Phone: 979-233-8044
Fax 979-233-1629

11. Fueling Services

Midstream Fuel Services LLC
1122 Marlin Lane
Freeport, TX 77541
Phone: 979-233-0176
12. Oil and Chemical Spills / Releases

National Response Center
2100 2nd Street SW, Room 2611B
Washington, DC  20593
Phone: 800-424-8802
Phone: 202-267-1322

Texas General Land Office Region 2
11811 North ‘D’ Street
LaPorte, TX  77571-9135
Phone: 281-470-6597
Fax: 281-470-6679
VHF Channel 16

13. Marine Equipment and Supplies

Baron’s Marine Ways, Inc.
221 W. Brazos Street
Freeport, TX  77541
Phone: 979-233-4650

Evco Industrial Hardware, Inc.
606 N Brazosport Blvd
Freeport, TX  77541
Phone: 979-233-5303
Fax: 979-233-8610
14. Ship Repair

Baron’s Marine Ways, Inc.
221 W. Brazos Street
Freeport, TX  77541
Phone: 979-233-4650

Precision Pneumatic
6618 E. Highway 332
Freeport, TX  77541
Phone: 979-230-9003

15. Oily waste and garbage disposal

For disposal of oily waste, USCG certificated contractors are:
I. Intergulf Corp. – Phone: 281-474-1937
II. Houston Marine Services – Phone: 281-902-3413
III. Nature Environmental & Marine Services, LLC – Phone: 866-770-7952

For disposal of garbage, certified contractors are:
I. Global Environmental and Marine Services – Phone: 281-572-3306
II. Nature Environmental & Marine Services, LLC – Phone: 866-770-7952

NOTE: For these oily waste and garbage disposable services, if alternative contractors are selected, a lead time of 30 to 45 days is required for the selected contractor to obtain the necessary operating certification through the USCG.
APPENDIX B

FREEPORT LNG CONTACT INFORMATION

Freeport LNG Corporate Headquarters
333 Clay Street, Suite 5050
Houston, Texas, USA, 77002
Phone: 713-980-2888
Fax: 713-980-2903

Freeport LNG Terminal Administration Office
Freeport LNG Terminal
1500 Lamar Street
Quintana, Texas, USA 77541
P.O. Box 2230
Freeport, TX 77541
Phone: 979-415-8700
Fax: 979-415-8733

Freeport LNG Terminal Main Control Room
Phone: 979-415-8750

Freeport LNG Terminal Dock Control Rooms
Berth No. 1 Dock: Phone: 979-415-8760
Berth No. 2 Dock: Phone: 979-415-8705

Freeport LNG Terminal Security Office
Phone: 979-415-8725

Freeport LNG Terminal Senior Management Team

Production Manager 979-415-8717
Maintenance Manager 979-415-8777
Operations Superintendent 713-358-9958
Maintenance Superintendent 979-415-8773
Facility Security Officer 979-824-7569
Regulatory Affairs 979-415-8728
Commercial Operations Superintendent 979-415-8742
Marine Specialist 713-333-4254
APPENDIX C
REFERENCES

For Terminal Users, the following FLNG manuals and other information sources are incorporated by reference and are available on the FLNG Customer website:

I. FLNG TUA Customer Website:  www.efreeportlng.com
   A. Health, Safety and Environmental (HSE) Management System for Operations
   B. Emergency Response Plan
   C. Hurricane Preparedness Plan

II. FLNG LTA & SPA Customer Website:  https://ede-portal.freeportlng.com/User-Access
   A. Health, Safety and Environmental (HSE) Management System for Operations
   B. Emergency Response Plan
   C. Hurricane Preparedness Plan

III. U.S. Code of Federal Regulations, Title 46 - Shipping

CHAPTER I--COAST GUARD, DEPARTMENT OF TRANSPORTATION

46 CFR 154 – SAFETY STANDARDS FOR SELF-PROPELLED VESSELS CARRYING BULK LIQUEFIED GASES

APPENDIX D
FORMS AND DRAWINGS – DOCK 1

Exhibit 1  Declaration of Security form
Exhibit 2  IMPA Standard Pilot Ladder Placard
Exhibit 3  Typical Breasting dolphin plan
Exhibit 4  Typical Mooring dolphin plan
Exhibit 5  Mooring diagram
Exhibit 6  Fender-line elevation
Exhibit 7  Profile view of Cargo Arm operating envelopes
Exhibit 8  Dock Fender performance diagram
Exhibit 9  Layout and Operating Envelope of the gangway
Declaration of Security

Name of Vessel

Port of Registry

IMO Number

Name of Port Facility Freeport LNG Development, L. P.

This Declaration of Security is valid from until for the following activities:

- During MARSEC Level
- Loading of cargo

Security level(s) for the ship:

Security level(s) for the port:

The port facility and ship agree to the following security measures and responsibilities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Facility</th>
<th>Ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications established between the vessel and facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring restricted areas to ensure that only authorized personnel have access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling access to the port facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling access to the ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring of the port facility, including berthing areas and areas surrounding the ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling of Cargo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening of stores, cargo, hand carried items, and baggage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling the embarkation of persons and their effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSO or designated representative will be responsible to identify crew members prior to them being allowed to return to the vessel or new crew members coming aboard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of Issue: _______________________

(Signature of FSO or Authorized Representative)  (Signature of Master or Vessel Security Officer)

Tim S. McClain
(Name of Facility Security Officer)  (Name of Master or Vessel Security Officer)

Contact Information: 281-614-9287

Contact Information: _______________________

Exhibit 1 – Declaration of Security
# REQUIRED BOARDING ARRANGEMENTS FOR PILOT

**In accordance with I.M.O. requirements and I.M.P.A. recommendaition**

**INTERNATIONAL MARITIME PILOTS' ASSOCIATION**

H.Q.S "Wellington", Temple Stairs, Victoria Embankment, London WC2R 2PN  
Tel: +44 171-240 3973  Fax: +44 171-240 3518

## RIGGING FOR FREEBOARDS OF 9 METRES OR LESS

<table>
<thead>
<tr>
<th>SPOONER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. dia. 38mm</td>
</tr>
<tr>
<td>Min. length 1.8m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPREADER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. dia. 16mm</td>
</tr>
<tr>
<td>Min. length 1.8m</td>
</tr>
</tbody>
</table>

**PILOT LADDER**
- Must extend at least 2 meters above the platform.
- Must be clearly marked "PILOT LADDER" and "UP".
- Must have a non-slip surface.

**ACCOMMODATION LADDER**
- Should be fixed firmly against the ship's side.
- Should extend at least 5 meters and have a non-slip surface.
- Must have a handrail and a guardrail.

## SHIPS WITH HIGH FREEBOARD (MORE THAN 9M)

**When no-side-door available**

<table>
<thead>
<tr>
<th>PILOT LADDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must extend at least 2 meters above the platform.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCOMMODATION LADDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must extend at least 5 meters and have a non-slip surface.</td>
</tr>
</tbody>
</table>

## MECHANICAL PILOT HOIST

<table>
<thead>
<tr>
<th>PILOT LADDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must extend at least 2 meters above the platform.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCOMMODATION LADDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must extend at least 5 meters and have a non-slip surface.</td>
</tr>
</tbody>
</table>

---

**Exhibit 2 – IMPA Standard Pilot Ladder Placard.**
EXHIBIT 3

FREEPORT
MARINE FACILITY PHASE 1

TYP. BREASTING DOLPHINS
PLAN AND ELEVATION
TYPICAL (SIMILAR) 4 PLACES

RUBBER CELL FENDER
WITH UHMW FACING
FENDER PANEL

DBL. QUICK RELEASE
HOOK WITH CAPSTAN

PLAN VIEW

TYPICAL SIDE ELEVATION
EXHIBIT 5
CSS 2250H G1.4 Performance

Design Reaction: 618 kips
Design Energy: 2000 ft-kips
Design Deflection: 52.5%

--- Graph ---

EXHIBIT 8

Tolerance +/- 10%
Telescopic ladder with self-leveling steps handling by hyd. cyl. for lifting, slewing and telescopin

Fire monitor not our supply

Column with Telescopic Access Ladder

EXHIBIT 9

Freeport Energy U.S.A.

Project

Description

Column with Telescopic Access Ladder
## APPENDIX E

**FORMS AND DRAWINGS – DOCK 2**

<table>
<thead>
<tr>
<th>Exhibit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Declaration of Security form</td>
</tr>
<tr>
<td>2</td>
<td>IMPA Standard Pilot Ladder Placard</td>
</tr>
<tr>
<td>3</td>
<td>Typical Breasting dolphin plan</td>
</tr>
<tr>
<td>4</td>
<td>Typical Mooring dolphin plan</td>
</tr>
<tr>
<td>5</td>
<td>Mooring diagram</td>
</tr>
<tr>
<td>6</td>
<td>Fender-line elevation</td>
</tr>
<tr>
<td>7</td>
<td>Profile view of Cargo Arm operating envelopes</td>
</tr>
<tr>
<td>8</td>
<td>Dock Fender performance diagram</td>
</tr>
<tr>
<td>9</td>
<td>Layout and Operating Envelope of the gangway</td>
</tr>
</tbody>
</table>
Declaration of Security

Name of Vessel

Port of Registry

IMO Number

Name of Port Facility  Freeport LNG Development, L. P.

This Declaration of Security is valid from ___________ until ___________ for the following activities:

During MARSEC Level ______
Loading of cargo

Security level(s) for the ship: ____________________________

Security level(s) for the port: ____________________________

The port facility and ship agree to the following security measures and responsibilities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Facility</th>
<th>Ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications established between the vessel and facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring restricted areas to ensure that only authorized personnel have access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling access to the port facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling access to the ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring of the port facility, including berthing areas and areas surrounding the ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling of Cargo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening of stores, cargo, hand carried items, and baggage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlling the embarkation of persons and their effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSO or designated representative will be responsible to identify crew members prior to them being allowed to return to the vessel or new crew members coming aboard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of Issue: ____________________________

(Signature of FSO or Authorized Representative) (Signature of Master or Vessel Security Officer)

Tim S. McClain
(Name of Facility Security Officer) (Name of Master or Vessel Security Officer)

Contact Information: 281-614-9287

Contact Information: ____________________________

Exhibit 1 – Declaration of Security
REQUIRED BOARDING ARRANGEMENTS FOR PILOT

INTERNATIONAL MARITIME PILOTS' ASSOCIATION
H.Q. "Wellington", Temple Stairs, Victoria Embankment, London WC2R 2PN  Tel: +44 171-240 3973 Fax: +44 171-240 3518

RIGGING FOR FREEBOARDS OF 9 METRES OR LESS

SHIPS WITH HIGH FREEBOARD (MORE THAN 9M)
When no side door available

MECHANICAL PILOT HOIST

NO!
- No slings
- No hoist
- No guide pole
- No spreader
- No shed

NO!
The steps must be equally spaced.

NO!
The tread must be horizontal.

NO!
The stairs must not be located between steps.

NO!
The tread must be equally spaced.

NO!
The steps are a raging hazard for the pilot and can become the pilot's launch.

EXHIBIT 2 - IMPA Standard Pilot Ladder Placard.
EXHIBIT 5
FREEPORT LNG MARINE FACILITY
Freeport, Texas
BERTH 2 ELEVATION
(LOOKING NORTH)

EXHIBIT 6
Performance Curve
Fenders

Project Information:

<table>
<thead>
<tr>
<th>Maritime Project Number:</th>
<th>61661</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maritime Project Name:</td>
<td>Freeport LNG Expansion</td>
</tr>
<tr>
<td>Author:</td>
<td>Jacob Delahousaye</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
</tbody>
</table>

Fender Details:

<table>
<thead>
<tr>
<th>Fender Type</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fender Height</td>
<td>2000 mm</td>
</tr>
<tr>
<td>Rubber Grade</td>
<td>1.6 G</td>
</tr>
<tr>
<td>Standard Deflection</td>
<td>52.5 %</td>
</tr>
<tr>
<td>Performance Unit</td>
<td>English</td>
</tr>
</tbody>
</table>

| Hor. No. of fenders | 1 |
| Vert. No. of fenders | 1 |
| Total No. of fenders | 1 |

Fender Performance:

- Reaction: 463.0 kips
- Energy: 1334.0 ft-kips
- Total Reaction: 463.0 kips
- Total Energy: 1334.0 ft-kips

**MCS 2000 G1.6 [1 x 1] Performance**

- Reaction
- Energy

**EXHIBIT 8**