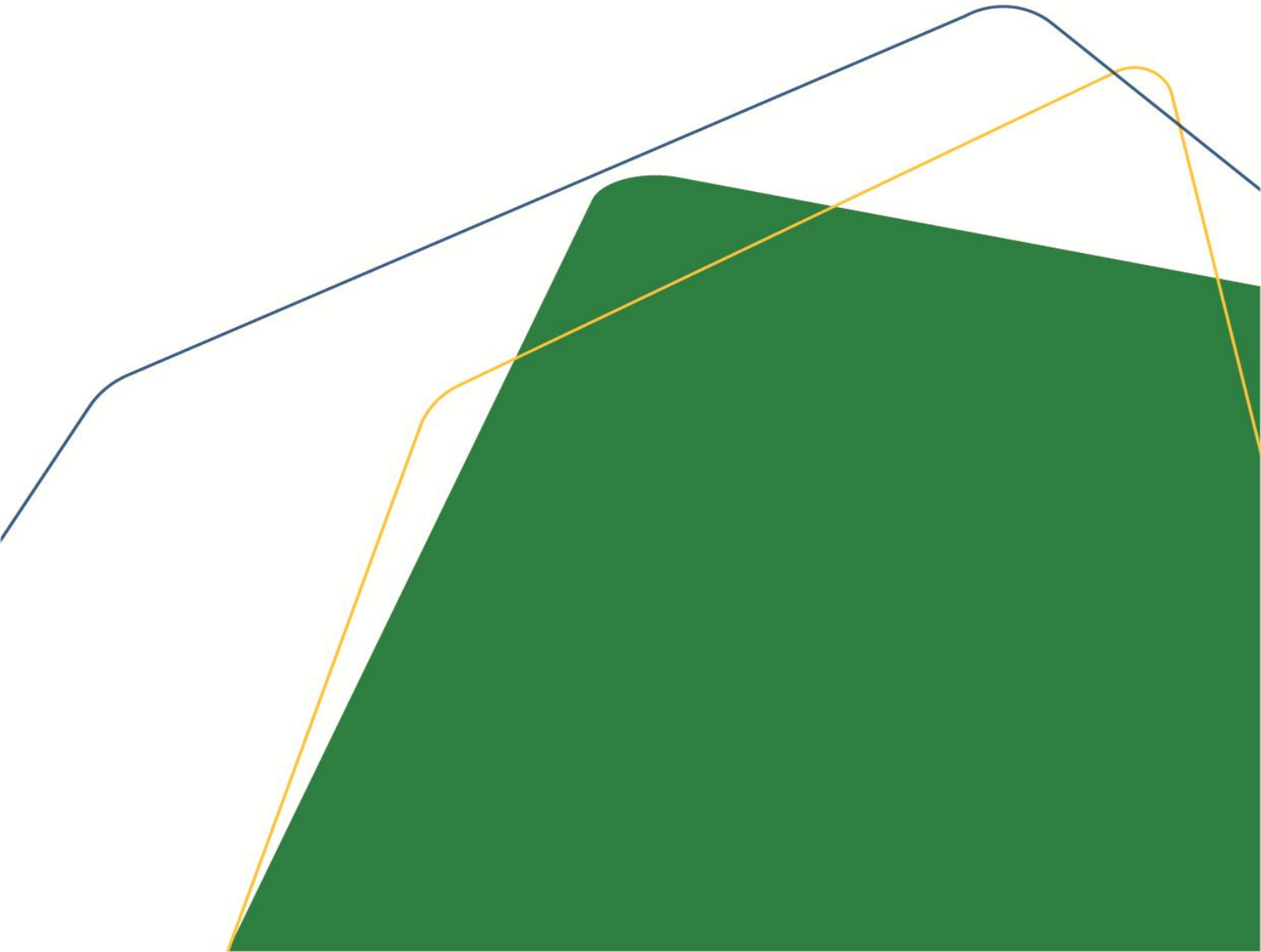
PORT INFORMATION

Terminal Information Booklet (TIB)

BAHIA LNG REGASIFICATION TERMINAL



BAHIA LNG REGASIFICATION TERMINAL

Contacts

ORGANIZATION	TELEPHONE (+5571)	MOBILE (+5571)	VHF CALL	EMAIL
TRBA - Control Room	HOT LINE / (+5571) 3877-7131/7132	---	16	trba.operations @transpetro.com.br
TRBA - Safety Inspector	(+5571) 3877-7134	(+5571) 99987-7541	16	silvio.macedo@transpetro.com.br cleidison@transpetro.com.br
TRBA – Nautical Advisor		(+5571) 99709-1491		isabelle.santos@transpetro.com.br
EXPERIENCE - Control Room	HOT LINE	---	16	---
EXCELERATE SEQUOIA-Master	---	TBC	---	master.sequoia@fleet.exceleratetm .com
TRBA – Operational Coordinator	(+5571) 3877-7141	(+5571) 99691-1708	---	---
TRBA – Security	(+5571) 3877-7139/7140	---	16	ssptemadre@transpetro.com.br
TRBA – Operations	(+5571) 3877-7131	---	---	trba.operations @transpetro.com.br
GE-LPGN - Asset Manager	(+5521) 2166-8928	(+5521) 98111- 2124	---	---
GE-TGNL – LNG Shipping	(+5521) 2166-5016	(+5521) 99740- 3920	---	Lngshipping @petrobras.com.br
CPBA – Harbor Master	3507-3777 3507-3756	---	---	20@cpba.mar.mil.br
Salvador Pilots	3241 0778	---	---	adm1 @salvadorpilots.com.br
Bahia Pilots	3321-0305 3321-2724	---	---	Diretoria @bahiapilots.com.br
BTS Pilotage	9981-4412	---	---	Linsinacio @uol.com.br

ANP – National Petroleum Agency	08009700267 (+5521) 21128619	---	---	---
INEMA – Environmental Agency of Bahia	0800 711400 3117-1200	---	---	---
ANVISA - Port Health Service Vigilance	3320-1282 3241-0276	---	---	---
IBAMA – Brazilian Institute of Environment	3172-1650/1750 0800 618080	---	---	---
FEDERAL POLICE – Maritime and Boundaries Police	3243-3952 3339-4558	---	---	---
CIVIL POLICE (Madre de Deus)	3604-1309/5750	---	---	---
Ambulance Service	EMERGENCY 192	---	---	---
UMI Hospital (Candeias)	3601-1516 3605-7100	---	---	---
General Hospital (Salvador)	3117-5960	---	---	---
Airport of Salvador	3204-1010	---	---	---

INTRODUÇÃO

This Port Information was prepared by **Petrobras Transporte S.A. (TRANSPETRO)** which operates the Bahia Terminal for Regasification of Liquefied Natural Gas (TRBA). CARRIERs using the TRBA facilities shall also read and comply with this Port Information.

The operation of ships at the TRBA must be in accordance with the recommendations of the International Safety Guide for Oil Tankers Terminals (ISGOTT) and the convention of International Maritime Organization (IMO) and must follow the operation guidelines of the terminal.

It presents essential information for ships that require operating at the terminal. It is distributed to the interested parties of the Organized Port and National Authorities. Port Information is presented in Portuguese and English versions.

The information contained in this publication is intended to supplement, never supersede or alter any type of laws, instructions, guidelines or official publications, national or international.

The Terminal reserves the right to change any operational information presented here without prior notice.

TRANSPETRO will analyze any suggestions, recommendations or corrections to the topics covered here, aiming to improve the content. If you find erroneous information that needs to be corrected, please contact:

BAHIA LNG REGASIFICATION TERMINAL

Located in the Bay of All Saints

Petrobras Transportes S/A - TRANSPETRO

Av. Presidente Vargas, nº 328, Centro.

CEP 20091-060, Rio de Janeiro – RJ.

The most recent version of this Port Information and other Terminals of **Transpetro** may be obtained by accessing the following address:

https://transpetro.com.br

Informações Portuárias | default

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REVISIONS

Revision	Changes	Date	Preparation	Approval
V.0	Initial version	04/29/2026	Assessora Náutica: Isabelle Rosane Carmo dos Santos ON Jacqueline Ferreira Vieira Ives Marcelo Xavier	Assessora Náutica: Isabelle Rosane Carmo dos Santos

1. SAFETY PROCEDURES

1.1 Safety Inspections

The TRBA Safety Inspector shall perform the safety inspections on the FSRU and on the CARRIER together with Excelerate Representative filling in the Safety Checklist.

1.2 Emergency and Fire Fighting Plans

Jetty Fire Fighting System

The TRBA is provided with the following firefighting resources: two Fire water fighting pumps, each one with capacity to supply 100% of the required water demand, providing thus full system redundancy. Heat, gas and smoke detectors are in place.

Emergency plans and Preventive measures on board

The TRBA, FSRU and the LNG Carrier, by each Emergency Response Plan, will work together to provide the resources to hand and mitigate of emergency events or sea pollution.

The TRBA will give support for oil spill events by the Emergency Response Center at TEMADRE, which in case of necessity, can be required by any Master. The costs shall be on charge of the requiring vessel.

The ships berthed shall set the best way for leave the ship from the jetty in emergency cases. FSRU master shall keep in touch with the tugs for the procedure (TRBA can help with the contact if necessary). In the same way, CARRIER will in accordance with FSRU representative and TRBA safety Inspector determine the best way for an emergency unmoor of the CARRIER.

The emergency equipment of firefighting must be kept ready for use, while the ship remains berthed. The operation fire hoses must be extended, one to forward and the other to aft of the load intakes.

1.3 Safety & Emergency Response

Emergency Communications

The FSRU shall announce immediately to TRBA and CARRIER by VHF radio or Hot-Line phone any emergency on board. For Emergency Response Contacts, see the CONTACTS page 2

As the same, the TRBA shall announce immediately to the FSRU by VHF radio or Hot-Line phone any emergency on Jetty.

Throughout the STS LNG transfer operation, the LNG CARRIER Officer on duty shall keep the FSRU advised of any circumstances that shall possibly have an impact on the cargo transfer or safety of the LNG CARRIER. Moreover, an hourly FSRU/TRBA exchange of information is advised.

All communications between the TRBA,
the CARRIER and the FSRU shall be conducted in ENGLISH an in a 'positive' reporting, i.e. all messages shall be repeated back by the recipient and acknowledged by the sender.

FSRU and TRBA Emergency Alarms

The FSRU is equipped with a visual and acoustic alarm system. The emergency alarms shall be as per following (PSD: prompt shut down):

Alarm Characteristics			
Emergency	**Acoustic Alarm**	**TRBA**	**FSRU**
General Alarm	HORN	Continuous - 1minute	Seven short followed by one prolonged
Abandon	HORN	Continuous - 3 minutes	1 short 1 prolonged
Fire	HORN	___	Seven short followed by one prolonged
Emergency ending	HORN	3 short each 15 seconds	---

Table 1

The "All Clear" signal onboard FSRU shall be an announcement on the FSRU Emergency Alarm system. The LNG CARRIER and TRBA shall be notified by VHF radio or Hot-Line phone.

LNG Carrier Emergency Alarm: The Carrier shall have an announcement as stated at the first meeting. Also the FSRU and TRBA shall be immediately notified by VHF radio.

FSRU / LNG Carrier Safety Checklist

LNG Ship to Ship Operation:

An FSRU and an LNG CARRIER Safety Checklist as per APPENDIX 2 shall be completed jointly by the responsible Officers of the ships (FSRU and LNG CARRIER) and by the TRBA representative following the safety inspection.

The Safety Checklist shall be completed
and signed by both LNG CARRIER and FSRU representatives prior to the start of any transshipment operations

Follow-up safety checks shall be conducted at agreed intervals, not exceeding 4 (four) hours throughout the LNG cargo transfer period, and the checklist shall be signed accordingly by respective Responsible Officers of the LNG CARRIER and the FSRU.

Testing of Lifeboats and Rescue Boats

Lifeboats and rescue boats shall not be permitted to be lowered to the water and tested for maintenance purposes whilst the LNG CARRIER is alongside the FSRU.

Diving Operations

Diving Operations shall not be permitted whilst the LNG CARRIER is alongside the FSRU. Arrangements for diving operations shall be made through the Ship's Agents who can then coordinate with Port management at the anchorage zone.

Safe protection layer inhibition

Inhibit safe protection layer ON BOARD (FSRU) is strictly forbidden unless it has been written authorized by a General Manager (Excelerate Energy), communicated and upon agreement with PETROBRAS (GAS/REGAS).

Sources of ignition

Any source of ignition including smoking, shall be restricted to designated areas on board the FSRU. Smoking is not be permitted anywhere on the jetty.

All portable electrical equipment, including hand held torches, radios and gas analyzers, which shall be operated in gas dangerous zones, shall be Approved Equipment for use in the flammable atmosphere concerned. All equipment shall be in such a condition and operated in such a manner that its original certification shall not be jeopardized.

Transportation of battery powered equipment such as computers, mobile phones, cameras and equivalent is permitted, provided that the equipment is switched off and is carried in a closed case. All non-approved mobile phones shall be switched off and the battery removed whilst transiting the jetty & the FSRU. The use of non-approved mobile phones on the jetty shall be strictly prohibited.

Use of LNG CARRIER's main communications equipment and radar shall be prohibited during LNG discharge operations; however, the use of the satellite communications equipment may be permitted, subject to the approval of the FRSU Master.

Whilst alongside the berth or the FSRU, no TUG or any other CRAFT shall be allowed closer than 150 m of CARRIER perimeter unless cargo operations have been stopped, valves have been closed and cargo decks have been secured.

Exception in an emergency, when shall be permitted tugs or other craft to go alongside, subject to the agreement of the FSRU Master.

FSRU and CARRIER Fire Fighting Equipment

The FSRU shall be equipped with fire-fighting systems and equipment designed to cover the FSRU only. In addition, the CARRIER shall be equipped likewise. All fire-fighting equipment shall

be in good working order. Portable equipment shall be correctly positioned, and ready for immediate use.

Hot Work

“Hot Work" in non-approved areas and work on open decks or on the jetty, which involves hammering, chipping or the use of power tools not intrinsically safe is prohibited. Use of power tools shall be allowed for maintenance work, provided proper risk analysis has taken place and upon agreement with TRBA.

Emergency Ship Unmoor

In case of an emergency unmooring the FSRU master shall set the best way for leave the ship from the jetty. FSRU master shall keep in touch with the tugs for the procedure (TRBA can help with the contact if necessary). In the same way, CARRIER will in accordance with FSRU representative and TRBA safety Inspector determine the best way for an emergency unmoor of the CARRIER.

Incidents on board of FSRU or LNG CARRIER vessels

The FSRU and the LNG CARRIER are considered a self-contained unit, fully equipped to deal with major fires and other emergencies on board and capable of providing the initial response to most incidents. The Masters (of FSRU and the LNG Carrier) are responsible for taking safety actions on shipboard emergencies.

Incidents on board either the FSRU or LNG CARRIER with the potential to develop into a major event are: Fire/explosion; Pollution through cargo and/or bunker fuel spills; Uncontrolled release of cargo liquid or vapour (LNG) from FSRU vent, hoses, tank overflow or leakages; Mechanical failure (affecting cargo operations); Man overboard; Personnel injuries (medical emergencies); Failure of the cable moorings.

If an incident happens, the responsible ship must communicate promptly to Petrobras, Transpetro, Harbor Master, ANP, INEMA and IBAMA, and provide every information and details following the Brazilian Laws.

It is hereby established as the entire area of evolution and maneuver within the evolution basin. The emergency anchorage area, located at the evolution basin, can hold two vessels (FSRU and LNG carrier) simultaneously.

1.4 FIRE AND EXPLOSION

Action to be taken by LNG CARRIER:

- Raise the Alarms and pass on the information to crew, FSRU and TRBA;
- Start Fire Alarm Signal;
- Initiate the own Fire Control Plan and emergency shutdown procedures;
- Liaise with Port Authority, FSRU and TRBA (stop operations, disconnect the hoses, prepare the tugs to pull the Carrier; release the mooring hooks) whether to unmoor and go to emergency anchorage position.
- Ask for Tugs to prompt assistance on channel 16;
- Bring engines and crew on standby, ready to unberth;
- Prepare to unmoor if the event escalates;

- Coordinate with TRBA and Harbor Master for marine resources and support;
- Ask for pilot assistance to navigate.

Action by Tugs & Pilots

- Tug to start fire pump and assist as directed by FSRU Master.
- Duty Tug's Master to establish communications with Pilot.
- Remaining Tugs to mobilize and assist as directed.
- Prepare to remove the CARRIER from the FSRU under direction of CARRIER Master and Pilot advice.

1.5 Conditions and actions to disconnect and emergency unmoor (for FSRU and /or CARRIER):

During an emergency the decision to unmoor and move the CARRIER or FSRU to the anchorage area may be the safer option.

The following situations are subject to vessels unmooring: Fire on TRBA; Fire on FSRU; Fire on CARRIER; Bad weather affecting the mooring safety. The following actions are necessary until vessels unmooring:

- Disconnect the arms and/or hoses: TRBA is responsible for CNG arms. This can be done in a conventional manner or in emergency operations using the ESD2 button on the jetty control room. The disconnection of LNG hoses is FSRU's responsibility.
- Mooring lines release: TRBA will act as requested by the Master of the FSRU or CARRIER, through the mooring system (always one vessel at a time). The lines release can be local or remote depending on the situation observed by TRBA Operators. In STS Operations the CARRIER mooring lines release have to be done by FSRU and have to be before to its own unmooring. If there are CARRIER lines on the jetty, FSRU and CARRIER need to be agreed with the unmooring and request TRBA personnel to proceed with the release.
- Communications with tug boats and Pilots: the Safety Inspector stays on board during the STS operations. The FSRU can contact direct the Terminal control room during other periods.

The final decision to unmoor is responsibility of the each Master (CARRIER or FSRU).

1.6 Oil spill from FSRU or LNG CARRIER

General

Specific action to be taken in the event of an oil spill shall depend on the nature, type and amount of the product spilled. The following general rules shall be adhered to, to ensure a fast and efficient response at the same time minimizing the environmental impact.

- For all spills, regardless of the product involved, a total ban on smoking on board shall be imposed on the vessel concerned.
- All other sources of ignition shall be isolated / secured.
- All loading or cargo related operations shall be stopped and cargo tank valves closed.

- All oil spills, regardless of amount involved, shall be reportable events as required by the Port Authorities and Environmental Authorities.
- On no account shall Chemical Dispersants be used (whether approved for use or otherwise) by either CARRIER or the FSRU, without the express permission of the Authority in charge of the incident.
- **The FSRU shall immediately advise the authorities of any oil spill from FSRU or CARRIER's facilities.**
- Communication shall be addressed to PETROBRAS, Port Authority, ANP and Environmental Authority.

Action by FSRU or CARRIER:

- Initiate emergency shut-down of cargo operations
- Secure all sources of ignition.
- Verify source/type of pollutant.
- Initiate Oil Spill Response Procedure and Emergency Response
- Inform port authority
- Liaise with appropriate authority to deploy the boom if necessary
- Liaise with appropriate authority to deploy adsorbent materials into the water.
- Commence log of events.
- Communicate the event to TRBA, Port Authority, ANP and Environmental Authority. Action by Tugs:
- Tug prepares to stand by to assist and stands off upwind until nature and type of spill has been established.
- Confirm to FSRU Control Room when standing by.
- Other tugs to prepare for stand-by to assist.

  Note: TEMADRE has an Oil Spill Emergency Response Center, which, in case of necessity, can be required by any Master.

Uncontrolled release of LNG from LNG CARRIER or FSRU

Action to be taken by LNG CARRIER:

- Initiate emergency shut-down.
- Secure all sources of ignition and impose a total smoking ban.
- Mobilize ship emergency response plan.

- Establish safety communications with FSRU and TRBA and advise nature, location and direction of the VAPOR CLOUD.

Action to be taken by FSRU:

- Initiate emergency shut down on LNG and CNG operations.
- Secure all sources of ignition.
- Operate fire monitors if applicable.
- Initiate Emergency Response Plan. Establish immediately communication with TRBA and advise nature, location and direction of the VAPOR CLOUD.
- Advise Port Authorities.
- Advise ANP and environmental Agency. **Action to be taken by TRBA:**
- Initiate emergency shut down on CNG (if applicable).
- Stop maintenance work and secure all sources of ignition.
- Establish safe communication with FSRU.
- Identify the direction and extension of vapor cloud.
- Communicate to labor force to go to opposite evacuation point.
- Provide support crafties and tugboats to attend.
- Initiate Emergency & Evacuation Plan if necessary.
- Communicate with PETROBRAS and Management.

Action by Tugs (as per drills)

- Verify extension and direction of the vapor cloud before approaching for assistance.
- Stand-by tug to activate firefighting and deluge systems and stand well clear upwind and await instruction from FSRU.
- Secure all ignition sources and impose total smoking ban.
- Remaining tugs to mobilize and stand offshore as in above and assist evacuation.
- Manoverboard Incident
- Action to be taken by the FSRU or LNG CARRIER:
- Deploy lifebuoy into the water.
- Raise the alarm by sounding on the ship's whistle.
- Stop LNG operations if the person in the water is within 100 meters of the vessel.
- Lookout and monitor position of person in the water.

- Request TRBA to assist with small craft and tugboats.
- Place medical services on standby.
- Communicate to Harbor Master.

Action to be taken by Tugs (as per drills):

- Stand-by tug to respond as directed by vessel's Master.
- Communicate with small crafties to assist.

Man overboard Incident

The response to this type of incident depends on the circumstances. In the event of a man overboard situation within TRBA and FSRU limits, all navigation activities shall be suspended whilst search and rescue activities take place. Extreme caution shall be required by the search vessels, particularly during hours of darkness, when approaching or entering the search area.

Action to be taken by the FSRU and/or CARRIER

- Deploy life buoy into the water.
- Initiate the alarm state by sounding the ship's whistle.
- Stop LNG operations if the person in the water is within 100 meters of the vessel.

Action to be taken by Tugs (as per drills)

- Stand-by tug shall respond as directed by vessel's Master. If necessary TRBA assistance can be requested.
- Coordinate with small crafts to assist the operation.

LNG CARRIER or FSRU Related Incidents

The response shall depend on the type of incident, the extent, the nature, location and severity of the event. Swift action shall, in most cases, prevent an escalation of these events.

Where marine craft are required to approach alongside the LNG FSRU or CARRIER, they shall only do so after control room has confirmed that cargo transfer has been stopped and check if there is no vapor cloud on tug direction.

Action to be taken by CARRIER or FSRU

- Initiate emergency shut down, if required.
- Advise other LNG vessel and TRBA nature and location of incident and require assistance.
- Mobilize crew to attend emergency response plan.
- Stand-by to disconnect loading hoses and prepare to vacate the berth.
- Maintain radio contact with TRBA and another LNG vessel
- Establish communications with stand-by tugs if considered necessary (e.g. mooring failure).
- If medical assistance is required, request Port State Control and Agent assistance.
- Master to request Pilot to stand by if assistance is required.
- In case of pollution or damage, advise ANP, Harbour Master and Environmental agency after emergency has been finished.

Escape routes & Rescue

The CARRIER shall have their own means to escape and rescue personnel. The TRBA gangway can be used by FSRU if considered safe. The rescue of injured personnel from FSRU and CARRIER shall be done by any means avaeilable (e.g. vessel's life safe boat, tug or small craft).

LNG Ship to Ship Transfer

After interruption due to abnormal situations, the operations between FSRU and CARRIER or shall only be restarted after detailed incident analysis and evaluation by the CARRIER, TRBA and the FSRU.

Following the execution of measures for solving the problem, the responsibility for determining the resumption of operation shall be of the party responsible for the interruption.

Power Failure

Despite all efforts to maintain power sources in good condition and always ensure adequate redundancy in power generation, power failures may occur for a few reasons. FSRU considers this possibility and identifies actions to be carried out in the event of power failure:

Prior to a Berthing Operation

The berthing operation should be aborted and the CARRIER removed to a safe anchorage or to an area clear of the FSRU. The berthing operation should not re-commence until the cause of the failure is determined and action taken to prevent re-occurrence. Same applies to CARRIER power lost situation.

During a Berthing Operation

If mooring lines are already connected, consideration should be given as to whether it is safer to continue mooring and secure CARRIER or to activate the emergency release of any mooring made fast and abort the operation as above.

Loss of Power on Tug Prior to or During-Berthing Operation

Action to be taken will depend upon prevailing meteo conditions, which tug has failed, proximity to the FSRU at time of failure and whether mooring lines have been made fast.

Operations and Tasks Not Mentioned

The operations under conditions not provided for in this procedure shall only be made after risk evaluation and definition of additional measures, agreed between the parties involved. If necessary, a Preliminary Risk Analysis should be assessed.

1.7 BERTH COLLISION / DAMAGE

In case of collision or damage to the berths, Masters must inform the Safety Inspector, the Brazilian Navy and the Protective Agency.

1.8 EMERGENCY SHUTDOWN (ESD)

FSRU Pin configuration of the Electrical Pyle national ESD system in use:

- PYLE 06/07 – ELEC TEL HOTPHONE
- PYLE 13/14 - ESD FSRU to Ship
- PYLE 15/16 - ESD Ship to FSRU
- PYLE 17/18 - ESD Umbilical continuity Cool down Procedures:
- The vessel (Carrier) is to arrive with her lines warm. LNG Carrier will perform the cooldown of cargo hoses and its liquid lines at the same time.

Warm ESD Test:

- In addition to any tests that may be carried out by the FSRU prior to the LNG carrier's arrival, ESD tests shall be conducted in conjunction with each arriving LNG carrier.

- When both FSRU and LNG CARRIER have confirmed ready for test, the LNG CARRIER shall initiate an ESD test signal. After resetting the FSRU shall initiate an ESD test with the LNG CARRIER (if it is possible, during the operation of spray/stripping pumps on circulation).

- All valves and equipment connected to the ESD system must be operating properly when the ESD System is released. Upon completion of a successful ESD test, the cool down operation is ready to commence.

1.9 SECURITY INCIDENTS

Any security incidents between CARRIER
and FSRU shall be reported by the TRBA and the Port Security under the ISPS Code. The Port Security Office shall contact the LNG CARRIER and FSRU Security Officer and shall decide on the course of action to take in accordance with Security plans.

1.10 MAN OVERBOARD

Masters must IMMEDIATELY raise the Man Overboard emergency on VHF channel 16, inform the Brazilian Navy, the Terminal Safety Inspector and the vessel's Protecting Agent.

1.11 REMOVAL OF BERTHED VESSEL

If it is necessary to know what resources are available at the Terminal, its representative shall request a copy of the document containing instructions for combating a particular emergency.

1.12 EMERGENCY SHUTDOWN (ESD)

The emergency shutdown will be negotiated with the vessel at the time of initial release. Transpetro encourages crews to **"When in doubt, STOP".**

1.13 INCIDENT NOTIFICATION POLICY

The instructions for notification of incidents must be followed by the captains according to:

- **Pollution Incident**

It should be recorded in a specific document, to be sent to the Terminal shift coordinator, as soon as possible. This document may be prepared in phases (initial alert, update of incident alert and final incident report).

- **Security Incident**

Similar action as for pollution incident.

- **Protection Incident**

Generate a report as recommended in the ISPs Code.

2. Health, Safety and Environment Policies

2.1 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Crew members in areas outside the superstructures must remain wearing their PPE. Crew members in transit "going to" or "coming from" the Terminal gate will be exempt from using PPE, however, the use of shorts and/or open footwear, such as flip-flops, is not permitted on Terminal premises.

2.2 ACCESS TO TERMINAL (CREW ASHORE AND VISITORS TO VESSEL)

The TRBA is fitted with a hydraulic gangway, located on the portside aft of the FSRU cargo arms. The gangway shall be operated by TRANSPETRO personnel. EXCELERATE SEQUOIA shall notice TRBA of any problem regarding access to and from the jetty to the FSRU.

2.3 DECLARATION OF SECURITY (ISPS CODE)

The Terminal have implemented corporate security protection measures applicable to vessels and port facilities, in accordance with the requirements of the International Maritime Organization – IMO, through adoption of the ISPS Code – International Ship and Port Facility Security Code.

If necessary, these protection measures may be activated by the vessel through the Terminal's Port Facility Security Officer (PFSO) or via VHF radio, calling channel 16 or via UHF radio provided by the Terminal.

The Terminal normally operates at protection level 1. For more information, the Terminal Port Security Supervisor, who is trained in accordance with the requirements required by the IMO, can be contacted by calling (+55 71 99691-1708 / lizanias@transpetro.com.br).

2.4 ALCOHOL AND OTHER DRUGS

According to ISGOTT, item 13.4, for personnel safety and health reasons, the use of alcohol and drugs has a dangerous effect on performance, behavior and creates an unsafe workplace. Thus, the consumption of alcohol or use of illicit drugs in Transpetro Terminals is not allowed.

Transpetro, with a view to supporting national and international authorities in combating drug trafficking and alcohol use in prohibited locations, complies with relevant preventive measures regarding the use, possession or criminal distribution of these substances.

2.5 SMOKING

Smoking is not permitted on the Pier and, on berthed vessels, except in compartments considered approved for this purpose by the vessel and Terminal or duly certified for this purpose.

2.6 PORTABLE ELECTRONIC EQUIPMENT AND NAKED LIGHTS

The use of explosion-proof electrical lighting on deck shall be permitted during the operation of the vessel.

Portable lanterns in use must be intrinsically safe, certified for use in explosion risk environments.

Radio transceivers to be used on deck,
during loading and unloading operations, shall be shielded, intrinsically safe.

It is forbidden to take photos of any area, equipment or people within the Terminal facilities without prior authorization from the Terminal management.

2.7 MAINTENANCE ON BOARD WHILE BERTHED

Repairs or maintenance work of any nature involving or that may involve risk of sparks or other means of ignition while the vessel is berthed at the Terminal Piers are not permitted.

2.8 MATERIAL HANDLING

The provision of provisions to the vessel must be preceded by express authorization from the Terminal. When authorized, it should only be provided during daylight, by the board opposite the berth. Only vessels previously approved by the Terminal and in accordance with the ISPS Code may be authorized and, before approaching the vessel, must make contact via VHF radio channel 16 with the Terminal's Security, in addition to ensuring that cargo/discharge equipment is in good condition and that safety procedures are being followed, as well as the use of the necessary Personal Protective Equipment (PPE). The delivery of materials at Ilha Redonda, Ilha Comprida and LNG Pier can only be authorized with the stopped operation and with prior authorization from GIAONT. At PP and PS Piers, ship-to-ship operations are not permitted on vessels with products having flash points below 60 degrees Celsius and connected.

2.9 SAFETY DATA SHEET (SDS)

For the storage, transport or use of chemicals classified as hazardous or whose intended or recommended uses give rise to risks to the safety and health of workers, the SDS is mandatory (NBR 14725/2023) and must be available at the storage and/or use location.

2.10 BENZENE AND H2S

The risks associated with toxic substances present in the cargo handled must be properly identified and understood.

2.11 STATIC ELECTRICITY

Attention must be paid to precautions for preventing ignition risks from static electricity sparks during measurements, sampling, connections and cargo/discharge operations.

3. General Information

3.1 REFERENCE LETTERS AND DOCUMENTS

Information about the Terminal can be obtained from the publications listed below.

Nautical Charts

Areas	Chart Number	
	Brazil (DHN)	British Admiralty
Proximities of the Port of Salvador	Chart 1101	NZ 541
Port of Salvador	Chart 1102	-
Todos os Santos Bay (Northeast part)	Chart 1104	–
Todos os Santos Bay (West part)	Chart 1107	–
Todos os Santos Bay (General)	Chart 1110	NZ 545
Rules and Procedures of the Port Authority	NPCP/BA 2024 TRBA	-
Support to navigation at the East Shore	DH1– II	-
Tide Table	Porto de Salvador (BAHIA)	-

Table 1

3.2 VESSE/TERMINAL COMMUNICATION POLICY

See items below.

3.3 OPERATING HOURS

No restriction.

3.4 LOCAL TIME

Brasília Time in UTC-03:00

3.5 COMMUNICATION LANGUAGES

The communication of the Vessel/Terminal must be made in Portuguese or English.

4. Description Of Todos os Santos Bay and Anchorage Areas

4.1 GENERAL DESCRIPTION

The Todos os Santos Bay (called “BTS”) is one of the Brazilian greatest bays. It has its harbor located between the Ponta de Santo Antônio, at E, and the island of Itaparica, at W, with a width of 5 miles; extending by 22 miles at the direction N – S having a maximum width of 18 miles at the direction E-W.

Its East margin is occupied by the city of Salvador, capital of the state of Bahia; the Northeast margin is low, and the margins North and West are mountainous. In the interior of the bay there are many islands and to the margins flow several rivers, being the Paraguaçu River the most important. The contours of the bay elevate gradually and are much chopped forming anchorages well protected.

The islands of Maré, Frade, Vacas, Madre de Deus, Itaparica, Bom Jesus dos Passos, Maria Guarda and some smaller ones are located at the North area of the bay. The island of Frade is located between 5 and 8 miles at the direction Nor-northeast of the North extreme of the island of Itaparica.

At the Northeast extreme of the island of Frade is the Ponta do Cavalo. Approximately 0.5 mile to the North of the Ponta do Cavalo is the island Madre de Deus. At the Ponta Mirim on the Southern limit of the island Madre de Deus, there are the facilities of the Terminal of Madre de Deus – TEMADRE.

The facilities of the Bahia LNG Regasification Terminal – TRBA are situated on the Todos os Santos Bay, at West of the island of Frade, at approximately 4 Km.

Harms to BTS navigation

The bottom of the BTS is normally formed by mud. The positions of the sand banks which are demarked by buoys may be more easily identified at the charts of the region. Around 1.75 miles at Westnorthwest of the spotlight of Ponta de Monte Serrat there is a buoy with red lamp emitting a red glimmer at each 5 seconds, equipped with radar reflector demarking a high depth where there is sounded 8.5 to 11m (28 to 36 ft.).

The islands of Maré, Frade, Vacas, Madre de Deus, Itaparica, Bom Jesus dos Passos, Maria Guarda and some others smaller are in the North area of the bay and are collectively named, Recôncavo Islands.

The island of Frade is between 5 and 8 miles at the direction North-northeast of the Ponta de Itaparica at the North extreme of the island of Itaparica. The lighthouse of the island of Frade, international nº G 0266 Gr. Lp 2 B 6sec 5M 9m, is at an elevation of 35m (114 ft.). It is a concrete quadrangular building 5 meters (16 ft.) of height at the Ponta de Nossa Senhora de Guadalupe.

During the navigation at the BTS, the attention must be reinforced by the ship’s crews, since that in the region there is a traffic of small vessels with and without own propulsion, besides the traffic of ferry boats crossing the BTS at the route Salvador-Itaparica Island.

Wrecked hulls (submerged):

- Marker 212º from the Lighthouse Garcia d’Ávila and distance of 4.4 miles
- Marker 170º from the Lighthouse of Santo Antônio and distance of 2.9 miles
- Marker 185º from the Lighthouse Garcia d’Ávila and distance of 5.0 miles

- Marker 218º from the Lighthouse Santo Antônio and distance of 300 meters
- Marker 291º from the Lighthouse Santo Antônio and distance of 500 meters

Bottom risings, banks, crowns and others at the bay and Access Channel:

- Bank **of "Panela"** – Great sand bottom rising, between the markers 245º and 009º of the Salvador Port South Jetty spotlight, at distances of 0.2 to 0.9 miles and minimum depth of 4.4 meters. This bank is marked at S (South) by a luminous green buoy and, at W (West) and at N (North), by luminous red buoys.

Environmental Factors

- **Winds:** The prevailing winds are from E at the months of January, February, March, May, September, November and December, and winds from ESE at the months of April, June, July, August and October. The winds from S use to blow at the new moon and at full moon, agitating much the bay waters. The prevailing winds at the region are from E/SE with a mean speed of 12 knots. Strong gusts of wind may arise with the maximum recorded speed of 23.7 m/s (47 knots).
- **Waves:** The final value of wave height (Hs) that can actuate over the Terminal, when actuating the cold front at the NE shore, it will be the sum of the waves developed at open sea, waves with regular shape and sometimes with great height, designed by undulation. The waves generated by the wind at the observing place, generally irregular and chaotic, designed as waves. The mouth of the Todos os Santos Bay, turned to South, and its large water body extension creates the conditions for the development of these waves when cold fronts arrive.
- **Rains:** The average annual rainfall in the region is 1.833,3mm (INMET,1991-2020).
- **Visibility:** During the winter intermittent rains occur and the visibility may be considered from regular to good. Normally the weather conditions are considered good to operate with tanker ships. The visibility is greater than 10 km at 90% of time.
- **Tides and Currents:** The tide at the Todos os Santos Bay has characteristics of semi-diurnals. The tide amplitude is situated in the range from -0.53m to 3.55m. At the Terminal access channel, the current may reach the speed of approximately 1.5 knots, but the maximum current acting over the surface of the pier is of 0.6 m/s (≈1,2 knots). The winds of E will prevail with influence over the maneuvers, mainly on offloaded ships. Use the Tide Table for PORTO DE SALVADOR (ESTADO DA BAHIA) at: http://www.mar.mil.br/dhn/chm/box-previsao-mare/tabuas.
- **Salinity:** The average salinity of salt water is 35.5 ups, with small seasonal variations, with maximum values above 36 ups. (Petrobras / Fundespa, 2003; Petrobras / FUSP, 2005; Genz, 2006).
- **Density:** The average density of the salt water varies from 1022.0 to 1026.5 kg/m³.
- **Atmospheric Pressure:** The local atmospheric pressure reaches a maximum value of 1,011.5 mb, in July, and a minimum value of 1,006.2 mb, in December, resulting in an annual average variation of 5.3 mb. This amplitude is next to the value of 6.5 mb, reported at the project PROMARLAM (PETROBRAS/FUSP, 2005).

- **Air Humidity:** The average relative humidity of the air reaches its maximum in May (85,1%) and its minimum in January (78,7%) (INMET, 1991-2020. Station of Ondina, for the period of 1991-2020).
- **Temperatures:** The maximum temperatures reach the highest values in the months of January, February and March, around 31 ºC. The minimum climatologic temperatures occur during the months of June, July, August and September, between 21 ºC and 21,9 ºC. The annual average temperature is around 25.6ºC (INMET,1991-2020).

4.2 LOCATION OF ANCHORAGES

As established in NPCP-BA/2024, the anchoring of vessels within the **Todos os Santos Bay (BTS)** shall comply with the restrictions set forth in **Nautical Charts No. 1110, 1101, 1104 and 1107**.

The anchorage areas listed below are **administered by the Port Authority of Bahia (CPBA)**, and their use shall comply with the following criteria:

Table 2

Area	Geometric Shae	Geographic Position	Use
I	Trapezoidal	a) 12º 55,52' S / 038º 32,88'W, b) 12º 55,52' S / 038º 31,46' W, c) 12º 56,55' S / 038º 31,46' W, d) 12º 56,21' S / 038º 32,88' W	Bunkering, inspections, minor repairs, embarkation and disembarkation of materials and personnel for vessels with draft ≤ 10 m and LOA ≤ 200 m. Vessels shall vacate the area after completion of operations. Waiting for berth is not permitted.
II	Polígono	a) 12º 59,24' S / 038º 33,60' W, b) 12º 58,33' S / 038º 33,60' W, c) 12º 56,80' S / 038º 32,41' W, d) 12º 57,20' S / 038º 30,90' W, e) 12º 57,90' S / 038º 32,30' W,	Bunkering, inspections, minor repairs and transfer of materials and personnel for vessels with draft ≤ 10 m and LOA ≤ 200 m.

		f) 12º 59,24' S / 038º 32,54' W.	
III	Trapezoidal	a) 12º 55,97' S / 038º 35,58' W, b) 12º 56,43' S / 038º 33,87' W, c) 12º 59,24' S / 038º 33,87' W, d) 12º 59,24' S / 038º 34,71' W	Anchorage and operational activities for vessels with draft > 10 m or LOA > 200 m.
IV	Circular (0.25 NM radius)	Centre: 12º 55,04' S / 038º 35,82 W.	Quarantine anchorage designated by the Maritime Authority. Vessels shall vacate the area immediately upon clearance.
V	Rectangular	a) 13º 00,30' S / 038º 36,60' W, b) 13º 01,50' S / 038º 35,00' W, c) 13º 03,90' S / 038º 36,80' W, d) 13º 02,70' S / 038º 38,40' W	Open anchorage for vessels awaiting internal BTS anchorage allocation.
VI	Circular (0.25 NM radius)	12º 54,48' S / 038º 36,32' W.	Dedicated LNG carrier anchorage for operations at the Bahia Regasification Terminal (TRBA).
VII	Quadrangular	a) 12º 58,31' S / 038º 32,35' W, b) 12º 58,31' S / 038º 31,71' W, c) 12º 58,95' S / 038º 32,49' W, d) 12º 58,95' S / 038º 31,71' W.	Anchorage reserved for large yachts (LOA ≥ 60 m).
VIII	Circular (0.35 NM radius)	Centre: 12º51'29,5''S / 038º 39'58,8''W.	Ship-to-Ship (STS) and transshipment operations, subject to Harbour Master authorization.
IX	Circular (0.35 NM radius)	Centre: 12º50'44,6''S / 038º 40'29,2''W	Ship-to-Ship (STS) and transshipment operations, subject to Harbour Master authorization.
X	Circular (0.35 NM radius)	Centre: 12º50'29,3''S / 038º 39'24,3''W.	Ship-to-Ship (STS) and transshipment operations, subject to Harbour Master authorization.

Restricted Areas:

Exclusion Zone - It is hereby established the exclusion zone within a radius of 150 meters around the side shell of the LNG vessels berthed / moored. Within the established zone, it is prohibited to carry out any service, including maintenance, which can generate any source of ignition, without the prior port authority consent.

Safety Zone - While at anchorage, it is hereby established Safety Zone the area comprehended by a 500 meters radius around the ship, where it is forbidden the entry, transit or stay of vessels that are not service providers nor are supporting the maneuvers, without the prior permission of the port authority.

4.3 APPROACH TO TERMINAL

Location:

Latitude 12°48'52" S and Longitude 038°40'45'' W.

Access Channel and Evolution Basin:

Access Channel: The access to the TRBA is done by the channel of São Roque/Paraguaçu that has lighting beacons. The ships may demand to the Terminal facilities during the daily hours. The access channel is indicated by the following navigational aids: 1) Lateral buoy BB REGAS 2; 2) Coroa das Pedras buoy; 3) Lateral buoys BE REGAS 1, 3, 5 and 7.

Evolution Basin: The evolution basin consists of the ellipse contained in the quadrilateral bounded by the signaling Especial REGAS 1 and 2 buoys, composed by two circles of 630 meters in diameter, limited at NW by the 15 meters isobatimetric curve, supporting vessels with up to 315 meters in length.

The buoys are distributed according the following table, as Technical Report nº: RL-4100.256443-933-PIG-001 Rev. 0 - Release of singling buoys of the access channel to Paraguaçu River and Regasification Terminal.

	Color	Geographic Coordinates		UTM Coordinates	
		Longitude	Latitude	E	N
BUOY REGAS 1		038°38'31.09" W	12°52'15.81" S	538,845.62	8,577,096.34
BUOY REGAS 2		038°40'39.67" W	12°51'09.04" S	534,972.97	8,579,152.48
BUOY REGAS 3		038°39'09.35" W	12°51'23.01" S	537,694.64	8,578,719.68
BUOY REGAS 5		038°39'59.39" W	12°49'54.73" S	536,189.93	8,581,433.63
BUOY REGAS 7		038°41'25.81" W	12°49'03.40" S	533,586.73	8,583,013.65
BUOY SPECIAL 1		038°40'25.92" W	12°49'02.11" S	535,391.13	8,583,050.50
BUOY SPECIAL 2		038°41'07.76" W	12°48'30.02" S	534,132.03	8,584,132.03
FTE DOLFIN 1		038°40'48.50" W	12°48'47.29" S	534,712.11	8,583,507.54
FTE DOLFIN 2		038°40'40.99" W	12°48'54.64" S	534,938.39	8,583,281.26
Coroa de Pedras		038°41'24.34" W	12°49'57.92" S	533,629.03	8,581,338.77

Table 3

Signs Detailing:

	Type	Luminous Charact.	Period	Detailed phase	Height	Altitude
BUOY REGAS 1	Articulated Buoy	Lp. E	3s	E.0.3 Ecl. 2.7	x	x
BUOY REGAS 2	Articulated Buoy	Lp. V	3s	E.0.3 Ecl. 2.7	x	x
BUOY REGAS 3	Articulated Buoy	Lp. E	5s	E.4.0 Ecl. 1.0	x	x
BUOY REGAS 5	Articulated Buoy	Lp. E	3s	E.0.3 Ecl. 2.7	x	x
BUOY REGAS 7	Articulated Buoy	Lp. E	5s	E.4.0 Ecl. 1.0	x	x
BUOY SPECIAL 1	Articulated Buoy	Lp. A	2s	E.0.8 Ecl. 1.2	x	x
BUOY SPECIAL 2	Articulated Buoy	Lp. A	2s	E.0.8 Ecl. 1.2	x	x
FTE DOLFIN 1	Spotlight	ISSO	x	F. A	4.80m	4.975m
FTE DOLFIN 2	Spotlight	ISSO	x	F. A	4.80m	4.975m

Table 4 - The draw above shows this configuration.

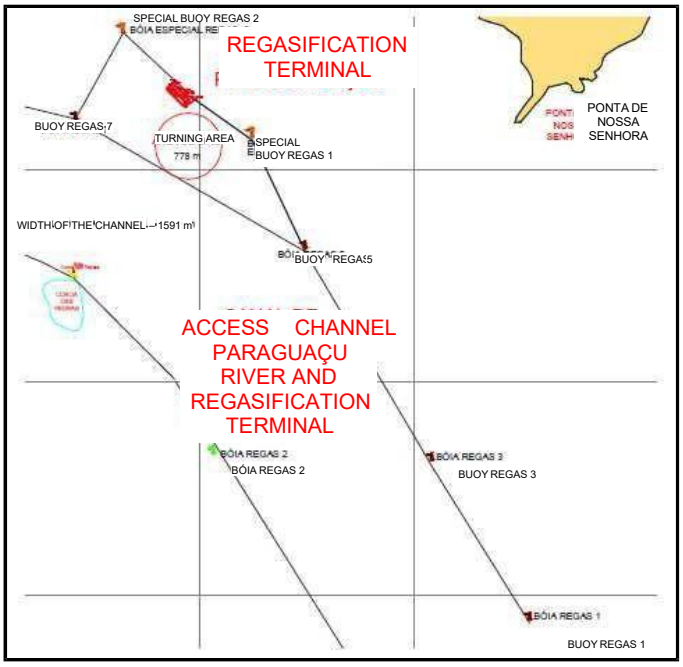


Figure 1

Speed restrictions, crossing and overtaking: During all LNG vessels maneuvers within the Pilotage Area (ZP) of Salvador or while at anchorage it is FORBIDDEN the approach of any vessel less than 500 meters from the ship, except those intended for escort and maneuver support.

The agency designated by the FSRU or
LNG carrier is the responsible for the coordination amongst the various involved parties (Pilots, Ferry-Boats, ports, terminals, etc) and the provision of the necessary means to ensure achieving the above purpose.

Draft: The maximum draft foreseen for the ship will be 12.50 meters. The minimum depth at the access channel is approximately 17 meters. The limit of draft for berthing and undocking does not change during the year.

Maximum speed of Navigation: The maneuver speed at the channel shall not be greater than 6 (six) knots at the bottom and the ship may not show list. The maximum speed for approach to the evolution basin shall not exceed 4 knots.

5. Terminal Description

General description

The Bahia Regasification Terminal is a pier offshore type island, built in 2013, with 01 berth for mooring of a storing and regasification ship (FSRU - Floating Storage and Regasification Unit) capacitated to store and regasification 170,186 m³ (FSRU Experience) and 216,000 m³ (Q-Flex) of Liquefied Natural Gas (LNG).

This FSRU, by means of regasification skids able to vaporize the LNG turning it in CNG (compressed natural gas), at a flow rate up to 20 million m³/day with peak 22.5 MMSm3/day (@20 °C and 1 atm), at a pressure of up to 102 kgf/cm².

A supplier ship (Carrier) with capacity (max) to transport up to 140,000 gross tons (TPB) is eventually berthed alongside of the ship FSRU, following the configuration side by side, using pneumatic fenders installed between them, for the transference of LNG using 6 to 8 liquid and 2 vapors cargo hoses provided by regasification ship (FSRU).

After the vaporization of the LNG, the CNG is offloaded by means of two offloading arms for high pressure natural gas installed at the pier operations platform and injected at the gas pipes net through a Gas Pipe with 28 inches (diameter) that crosses a 15.5 km underwater stretch and other terrestrial of 29.5 km.

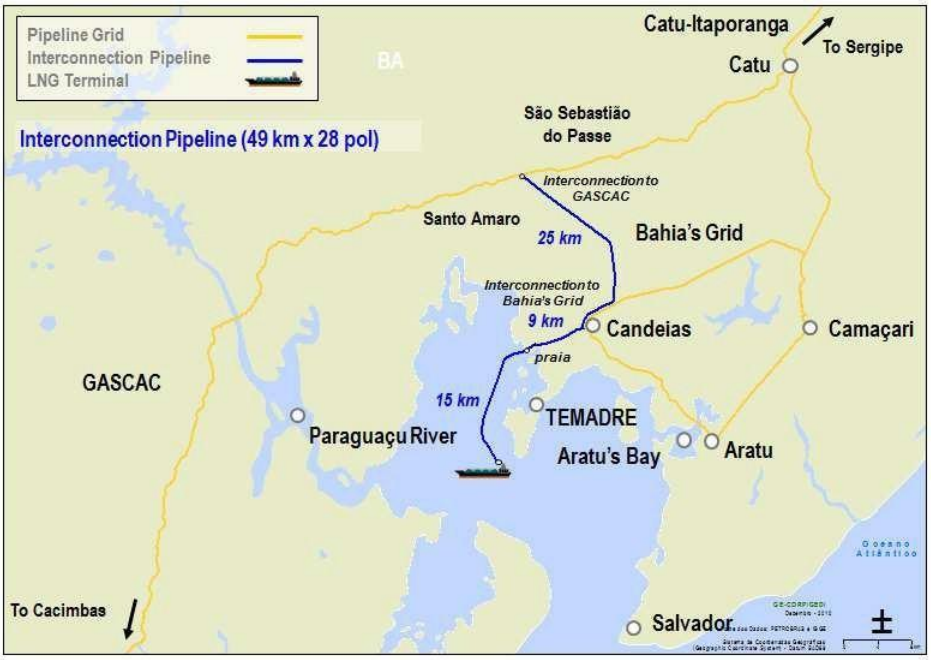
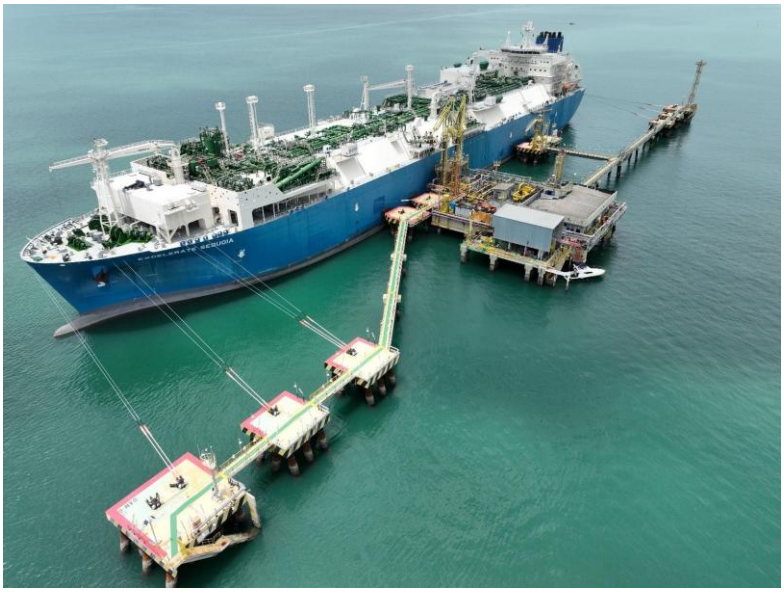


Figure 2

5.1 TERMINAL LAYOUT



FSRU Facilities

EXCELERATE SEQUOIA is a Liquified Natural Gas Carrier equipped with regasification equipment enabling the vessel to operate as conventional LNG Carrier or FSRU. It has 294.5 meters in length, 46.4 meters in width, rising approximately 43.0 meters above the water line to its highest point.

The FSRU's draft is from 9.0 to 12.5 meters depending on cargo onboard. The FSRU has a net storage of approximately 173,611,3 CM of LNG in four membrane containment tanks. It has nominal vaporization capabilities of 20 MMSm3/day (peak 22.5 MMSm3/day).

The vaporization system is capable to operate at a minimum send-out rate of 1.5 MMSm3/day. The FSRU is equipped with ten x 8" LNG loading hoses on starboard side to connect to the CARRIER manifold.

FSRU also is equipped with distance sensor in order to Shut Down the operations and disconnect the hoses.

Physical Details of FSRU for side by side operation:

Note: The data are not from the pier, but from the FSRU, as it refers to compliance with the Supplier in SS configuration, and not from the Supplier with TRBA (at SBS the terminal is the FSRU Experience).

CHARACTERISTICS	MIN	MAX
Summer deadweight	48,857 t	125,000 t
Maximum displacement	-	146,500 t

Volumetric capacity	89,000 m³	218,000 m³
Length (LOA)	239 m	315 m
Maximum width	-	50 m
Body Length Total Parallel	62 m	
PBL Forward of Manifold	23 m	
PBL Aft of Manifold	39 m	
Bow to Manifold Distance	97 m	188 m
Stern to Manifold Distance	117 m	188 m
Height of Manifold above the waterline (envelope of LNG hoses)	13 m	28 m
Air draft	No restrictions	No restrictions

Table 5

5.2 VESSEL ACCEPTANCE CONDITIONS

See item 7 COMMUNICATION BEFORE ARRIVAL

5.3 MAIN RISKS TO BERTHING AND STAY

The climatic conditions at the access channel, evolution basin and piers of berthing are normally very favorable and safe for navigation, maneuver and stay.

During the transfer operations of LNG and CNG the mooring lines must be constantly monitored in order to avoid the excessive tensioning of lines to avoid the tearing of the same.

In case of atmospheric discharges (lighting), the operations must be suspended until the meteorological conditions are restored.

When the limits of winds are reached the operation and berthing at the TRBA must be suspended.

Weather Limitations

ACTIVITY		WIND (knots)	WAVE (meters)	ACTION
FSRU or CARRIER	Mooring	< 20 < 15 (S, SE)	<=0.9	Normal Condition. No action.
	Unmooring	> 20		Mooring and Unmooring shall be suspended
		> 35		Tugs shall be requested to be close to the FSRU or CARRIER Previously LNG loading hoses drain and disconnection.
STS	Operations	> = 30 persistent	>1.3	Interruption of STS operations.
		> 35 persistent		Disconnect LNG hoses and unmoor the ship by Master's evaluation (See 4.2.2).

Table 6

6. Description of Berths

6.1 CHARACTERISTICS OF THE JETTY

Berth Characteristics:

- Total length of the pier: 330 m
- Deadweight tonnes (DWT) up to 125,000 tons;
- Depth of 17 meters;
- Length of vessel up to 315 meters;
- Distance between fenders (external / internal) - 110/80 meters;
- Berthing - starboard or port side.

Size Restrictions:

Regasification Ship LNG Carrier

- Deadweight tonnes (DWT) up to
- Deadweight tonnes (DWT) up to 125,000 ton; 125,000 tons;
- Maximum displacement of 146,500
- Maximum displacement of up to tons; 146,500 tons;
- Draft of up to 12.5 meters;
- Length of up to 315 meters;
- Breadth of up to 50 meters.

Fenders

Jetty Fenders:

The dimensioning of the JETTY fenders has taken into consideration the berthing energy. The energy absorbed by the fender was calculated based on PIANC recommendations, considering a Q-Flex type vessel.

Main recommendation is to limit the approximation angle during docking, which must be less than 15º between the longitudinal axis of the ship and the longitudinal axis of the TRBA, with a maximum berthing velocity of 0,15 m/s.

Floating Fenders:

There are at least 04 (four) pneumatic floating fenders (9m x 4,5m) and 2 (two) baby fenders (3,0m x 1,5m) to berth a CARRIER alongside FRSU.

The fenders are designed according to PIANC recommendations. The maximum relative approach velocity should not exceed 0,10 m/s, which shall be ensured by LNGC Master and Pilot onboard the latter.

The pneumatic floating fenders is inspected and certified by the terminal after unmooring every CARRIER, in order to maintain the integrity of the equipment.

According to the project and Port regulation, four (4) fenders is needed to moor a CARRIER alongside the FSRU. TRBA has 5 fender available, its not allowed mooring maneuver or keep moored in case of less than four fender available.

6.2 ARRANGEMENTS FOR BERTHING AND MOORING

Determinants for maneuvers: (as presented at Portaria 64/2015 CPBA)

I The berthing and unberthing maneuvers of LNG vessels (FSRU and Carrier) will be carried out only during daytime**;**

II Daytime maneuver: That in which POB is comprehended between sunrise subtracted 1h30min and sunset subtracted 02h30min (berthing) and sunrise subtracted 30 minutes and sunset subtracted in 1h (unberthing);

III The maximum recommended draft for berthing is 12.5 meters;

IV Pilot boarding is to take place at the pilot boarding station (PEP);

V Maneuvers are conditioned to wind
speed of up to 20 knots, exception made for winds coming from SOUTH and SOUTHEAST, limited at 15 knots.

VI Current velocity of up to one (1) knot.

VII Wave height not greater than 0.9 meters.

VIII Berthing of the LNG carrier is only to occur with the FSRU equipped with a minimum of 04 YOKOHAMA type fenders alongside.

IX The agency designated by either the regasification vessel or the LNG carrier is to communicate to all involved parties (Port Authority, pilotage, navigation agencies and tugs) the LNG vessels (FSRU and Carrier) maneuver intent 72 hours in advance.

X Tides ranging from -0.53 up to 3.55 meters.

XI Berthing: daytime maneuver, at flood tide, with ship leaving Salvador within the period of 2 hours before low tide up to 3 hours before high tide. Unberthing: daytime maneuver, nondependent on tide; and

XII Berthing: Portside.

Berthing Speed and Angle:

It is limited by the absorption capacity of the fenders and of the pier structure. The maximum speed of berthing will be **15cm/s.** The Docking Aid System is available for the Master and the Pilot, this is a monitoring system of speed and berthing angle for maneuvers.

Recommended Mooring:

Petrobras/LNG Shipping will simulate by OPTIMOOR software the position between FSRU and Carrier due to define the compatibility of LNG hoses vs manifold and the position of mooring lines.

Every ship intended to the TRBA must be capacitated to execute the mooring below. The mooring safety is of ship master responsibility and will be assessed by a qualified safety inspector. The berthing of Carrier in side-by-side configuration is a FSRU master responsibility.

The Terminal may cancel or interrupt an operation in which the Ship berthing is deemed unsatisfactory. The minimum mooring configuration is defined below.

In the event of a mooring line failure, the cargo transfer operation shall be suspended until a safe mooring condition is verified.

Whenever applicable mooring tensions should be monitored, enabling trend patterns and peak loads to be observed and consideration to be given to stopping operations and disconnecting prior to any line failure. As with any inter-dependent system, the failure of a single element can result in progressive failures.

Loss of a single line may not be symptomatic of a system failure but may be as a result of the individual line's poor condition. If progressive failures occur, a controlled shut down, hose disconnection and unmooring should be initiated.

Jetty Mooring System:

The TRBA has 6 (six) Mooring Dolphins (named DAM 1 to 6) and 4 (four) Breasting Dolphins (named DAT 1 to 4). Mooring system is dimensioned following the recommendation of OCIMF. The total number of hooks is 18 (eighteen). The release of the mooring lines is done by remote

control, or even manually through a lever.
The safety system of overload is provided with loading cells located in the pins of the hooks.

	DOLPHIN	BITS / TRIP HOOKS	MAXIMUM LOAD
BERTHING	DAT 1	01 bit/2 hooks	2x125 tons each
	DAT 2	01 bit/2 hooks	2x125 tons each
	DAT 3	01 bit/2 hooks	2x125 tons each
	DAT 4	01 bit/2 hooks	2x125 tons each
MOORING	DAM 1	02 bits/6 hooks	3x150 tons each / 3x125 tons each
	DAM 2	01 bit/3 hooks	3x125 tons each
	DAM 3	01 bit/3 hooks	3x125 tons each
	DAM 4	01 bit/3 hooks	3x125 tons each
	DAM 5	01 bit/3 hooks	3x125 tons each
	DAM 6	02 bits/6 hooks	3x125 tons each / 3x150 tons each

Table 7

FSRU Mooring System (for LNG Carriers):

The mooring system for STS operation on board of the FSRU consists of:

LOCATION	DESIGNATION	TYPE / SWL
FWD	Breast/head lines	Bollards 2 x 125 tons
		Bollards 2 x 72 tons
MIDSHIP	Forward Spring lines	Bollards 2 x 72 tons
		Capstan 1.5 tons
	Aft spring lines	Bollards 2 x 72 tons
		Capstan 1.5 tons
AFT	Breast/stern lines	Bollards 2 x 125 tons
	Breast/stern lines	Bollards 2 x 72 tons

Table 8

The FSRU has a procedure to release the
CARRIER mooring lines efficiently and with high level of safety. See Appendix 4.

A QRH can be manually or locally released. In addition, two triple hooks on the jetty are part of the LNGC mooring system and are controlled by TRBA personnel only locally.

Note: The arrangements for berthing and mooring available are described at Appendix 8 and 9.

Management and Control of Berthing and Stay

The maneuvers of berthing and unberthing ships at the TRBA must be executed always with the participation of Pilot capacitated and utilizing tugs in quantity and with the tensile capacity specified in this document.

All maneuvers are followed and recorded by TRBA through mobile cameras of closed circuit of television.

At the FSRU berthing, the Safety Inspector will be positioned to assess the maneuver and guide the positioning of the FSRU relatively to the loading arms.

At the Carrier berthing, the FSRU Master will be in charge to guide this positioning. A linesmen team is available (at the jetty and FSRU) to place the mooring lines at bits and slip hooks.

Compliance with ISPS Code

The TRBA is an installation operated by the Maritime Terminal Alves Câmara - TEMADRE. This port installation is certified by ISPS Code with IMO Number: 24064BRSSA.

The TRBA implemented protection measures of enterprise safety applicable to the ships and port installations, in terms of the requirements of the IMO, through the adoption of the International Ship and Port Facility code.

In case of needing, these protection measures may be initiated by the ship through the supervisor of Terminal Port Safety (PFSO - Port Facility Security Officer) or through channel 16 of VHF.

The access control will occur before the embarkation of the visitant to the transport means that will bring him to Terminal, regardless of its place of embarkation (Madre de Deus or Salvador). This procedure is considered as preventive and don’t avoid or impede new checking by the watchman in service at the platform entrance of the TRBA duly said.

The TRBA is considered restricted with access only for the people which work there routinely, or which have real need for entrance duly authorized by the Management of TEMADRE and duly accompanied by effective personnel from their own installation.

The terminal is provided with an internal watching circuit (CCTV) for monitoring the activities and ships at the TRBA area and for compliance with the ISPS Code.

The TRBA Reception watchman will receive the information related to the authorized vessels, persons and material with authorized access. This data will be received from shore, according to the foreseen in the movement program existing for this terminal, from the person responsible for the embarkation control and check.

The identification, authorization and register to access the TRBA must be obtained yet onshore, before embarkation, using the same procedures existing in the ISPS Code.

At the platform reception, the watchman in duty will check and inspect of persons and luggage, not supplying badges or any procedures for local register and release of access to that installation.

All people wishing to access the FSRU through the Terminal must be previously identified by the Agent (all of crew change, embark of maintenance technicians; material, spare parts or provisions delivery or garbage removal). See the table below.

	Federal Police authorization	Documents	Baggage Inspection	Remarks
Access for Agent	No	Brazilian ID card	Randon choice	Prior notice to TRBA by the Agent Access by boat (only)
Access for Technicians (only for FSRU)	No	Brazilian ID card	Randon choice	Prior notice to TRBA by the Agent
Access for Technicians (foreigner) to the FSRU	Yes	Passport	Randon choice	Prior notice to TRBA by the Agent
Crew change (only for FSRU)	Yes	Brazilian ID card or Passport	Randon choice	Prior notice to TRBA by the Agent
Provision delivery (only for FSRU)	No	Brazilian ID card	No	Prior notice to TRBA by the Agent Need the applicable authorization by port authorities
Garbage removal (only for FSRU)	No	Brazilian ID card	No	Prior notice to TRBA by the Agent Need the applicable authorization by port authorities
Relatives access (only for FSRU)	Yes	Brazilian ID card or Passport	Randon choice	Prior notice to TRBA by the Agent

Table 9

7. Communication Before Arrival

7.1 TERMINAL INFORMATION FOR VESSEL

SYSTEM AIS:

The TRBA has a system of ships maneuvers monitoring, based on the Automatic Identification System (AIS). The AIS must be turned on while the ship is navigating, anchored, in the stage of mooring or undocking.

The ISGOTT recommends that on terminals with the presence of flammable vapors the equipment must be kept on or alternatively be earthed during the operations of load/offload, to preserve the data manually inserted. After the berthing the equipment must be turned off earthed, and after the disconnection and before unberthing must be turned on again to allow that the terminal keeps monitoring the vessel.

SHIP BERTHING:

- The mooring lines must receive permanent care to keep the ship always berthed. All lines must be kept under suitable tension during the operation, with winches under brake, not permitted the use of automatic tensioning winches. All mooring lines must be of same type, gauge and material (fiber or wire), not permitted the use of mixed moorings.

- Emergency tug lines must be left pending up to the water line, by the bow and quarter of the opposite board of the berthing, and passed at the bits of board, keeping the lines eyes at the height of the water during all operation.

- The Agency must provide vessels and personnel to transport the mooring lines from the ships to the pier and from the Supplier to the FSRU. For mooring service in TRBA it is necessary two diesel powered motorboats. For ships which agency is PETROBRAS Terminal will provide the service.

- Should the CARRIER land heavily against the fenders, with suspicion of damage, or make actual contact with the FSRU when berthed, cargo operations should not commence until an assessment of damage has been made. If necessary, the CARRIER should be moved off to validate the condition of the FSRU, CARRIER and equipment. In case of major contact eventuality of stopping regas operations and disconnecting HP arm to be considered.

BEFORE LNG/CNG TRANSFER:

- The FSRU's Master shall be responsible for the safety of the entire LNG Ship to Ship transfer and is appointed as advisory control superintendent from the LNG CARRIER mooring until the unmooring and departure.

- Moreover, the FSRU's Master shall be responsible for the safe operation of his ship (always including cargohandling operations) and the safety of the FSRU'S personnel. The FSRU Master shall sign this document with acknowledgment of his own responsibility.

- The LNG CARRIER's Master shall also be responsible for the safety operation of his own ship, always including cargo-handling operations and the safety of the LNG CARRIER'S personnel.
- The Master shall be required to sign a Safety Letter of acknowledgment (Appendix 5 – Safety Letter - Carrier).

- A FSRU's Officer shall be present in the LNG CARRIER's Cargo Control Room (CCR) to monitor operations and assist in communications if requested by LNG Carrier.

7.2 VESSEL INFORMATION FOR TERMINAL

Terminal Form (ISGOTT Chapter 22)

8. Operational Information

8.1 VESSEL / PORT ACCESS

See item 2.2 ACCESS TO THE TERMINAL

ATTENTION:

- If doesn't have enough space to land the basket properly, the carrier must build a platform (by scaffolds or wooden).
- If a boat is required to access the ship, the master of this ship needs to arrange this boat.

Some examples of plataforms:

Figure 3

8.2 CONDITIONS OF USE:

Masters of all LNG FSRUs and LNG CARRIERs using the TRBA facilities shall be in accordance and be subjected to Port, State and National regulations.

- As per signing the Safety Letter before beginning of operations, acknowledging the responsibility and liabilities whilst using TRBA facilities.
- During the ship stay at TRBA several actions are executed to ensure a safe operation and manage the risks in a way to minimize them. At all phases, as described in the below sub-items, the provisions are taken with the purpose of facilitating the operations and planning them

8.3 BEFORE ARRIVAL

The official limit of the port is the inlet
harbor that is on the breast of the lighthouse of Santo Antônio. The time when passing by the breast will be considered as official time of arrival (NOR).The port authorities are called by the ships agents as a function of arrival and prevision

8.4 TANK PRESSURE LIMITS

The vessel (Carrier) is to arrive with tank pressure around 100 mbar max (recommendation).

8.5 CARRIER'S PRE-ARRIVAL COMMUNICATIONS:

To assist in planning and to satisfy contractual obligations, the pre-arrival messages shall be sent to EXPERIENCE, PETROBRAS and TRANSPETRO.

8.6 PRE-ARRIVAL MESSAGES:

On Departure from Loading Port, and 96, 48, 24, 12 and 06 Hours prior to arrival at Salvador Port anchor area; LNG Carrier shall send notices to update its position.

Agent's shall be requested any other additional information required by the Port and local authorities: LNG carrier's name & call sign; BB ETA and Arrival Draught; Estimated average cargo temperature on arrival; Confirm the all the navigation, mooring, safety & engine systems, cargo & boil off systems, gas detection and safety alarms have been tested and/or are fully operational; Cargo tanks/lines are free of oxygen and have no leakage; ISPS Security Level.

The Vessel shall establish the first contact with the port control on the port working frequency (channel 16) at least of 2 hours before her ETA. If the ETA changes by more than 4 hours, the notification shall be updated.

8.7 ON ARRIVAL:

Once the LNG Carrier has arrived at the pilot station or customary anchorage, has cleared the necessary formalities with the relevant authorities and is ready in all respects to proceed to berth and commence unloading, the Master of the LNG Ship shall give a notice (Notice of Readiness) sent by electronic mail or facsimile to the FSRU Master.

8.8 AT ARRIVAL

Repairs on board must be done at the anchorage area. Only the ship FSRU may execute services with the ship berthed, through previous authorization of the Terminal.

When berthed, after the safety inspection done by the Operations Safety Inspector, based on the Safety Checklist of the ISGOTT and SIGTTO, if there is pendency not solved by the crew, the ship will not receive authorization from the Terminal to begin the operation.

The beginning of the operation will only happen after the fulfillment of the Initial Letter, by the representatives of shore and board. The Safety Checklist Ship/Land contained at (Annex A of "ISGOTT" and SIGTTO) is checked and fulfilled by the Safety Inspector during the initial release of the ship.

8.9 OPERATIONAL SAFETY CHECKLIST (OSC)

The Ship/Shore Safety Checklist (ISGOTT
Safety Checklist) is verified and completed by the Terminal representative (Safety Inspector) during the vessel's initial clearance, when all safety recommendations are addressed.

8.10 BALLASTING AND DEBALLASTING POLICY

The requirements for ballasting and deballasting must comply with current legislation.

8.11 CARGO TRANSFER PROCEDURE

ACCESS OF SMALL VESSELS:

Must be strictly observed the prohibition of the permanency of small vessels not authorized alongside berthed ships or at their proximities. Only the service vessels of the Terminal or the authorized ones may be at the proximities or at alongside, since they comply with all safety conditions. The fault with this rule must be communicated to the competent authority.

ELECTRICAL EARTHING:

The loading hoses are electrically earthed individually. The ship electrical earthing may be done also by means of the earth cable, connected to the terminal structure.

COMMUNICATION MEANS:

Communications are made with ships by means of VHF radios in a maritime frequency previously agreed and recorded. A secondary way, through VHF radio and/or UHF terrestrial, is agreed for fault on the main system.

COMMUNICATION MEANS OF THE CONTROL ROOM:

For external and internal contacts with the several operational and administrative areas are described at Contacts page 2.

SOOT BLOWING:

It is forbidden to make soot blowing or cleaning of boiler’s tubing with the ship berthed. Precautions must be taken to avoid the escape of sparks by the stack. The fault with these regulations will cause one or more of the following penalties: immediate interruption of the operations; fine by competent authorities; obligatory undocking of the ship from pier; infraction communication to the owners; charge on the ship by the fines, time lost and all any other expenses related incurred by this fact.

PROTECTION AGAINST PRODUCT RETURN AND OVERFLOW

To avoid eventual product return to the FSRU during the offload operation (regasification) to the gas pipeline, there are installed check valves at the discharge lines 12"-G99-6443-001-Fc and 12"-G996443-002-Fc downstream of the offload arms BC-6443001-A/B.

PROPELLER MAINTENANCE

The ships berthed may not move their propeller(s) whilst connected to the loading hoses. A ratchet may be used after the due notice to the terminal operator and approval by the Safety Inspector, but the propeller must be moved in so slow way that the absolute safety is reached. The ships will be in charge of any damage resulting from these procedures.

8.12 PRE CARGO TRANSFER LNG OPERATIONS

ACCESS BETWEEN THE FSRU AND LNG CARRIER:

- The FSRU is fitted with a hydraulic operated personnel transfer basket which is located on the starboard side aft of the FSRU's cargo hoses. The personnel transfer basket will land aft of the LNG Carriers cargo manifolds and form part of the pre-arrival compatibility checks.

- On completion of mooring the Pilot and LNG carrier's Master will confirm to the FSRU Master that the LNG carrier is securely moored ("All Fast") and that the personnel transfer basket can now be operated and land on the LNG Carrier's deck and ESD cable to be connected.

- Before landing the personnel transfer basket on to the LNG CARRIER, a Responsible LNG CARRIER's Officer must agree with the FSRU Officer who operates the equipment that it is safe to land the personnel transfer basket. Thereafter boarding FSRU personnel can take place.

CONNECTING ESD

- The LNG carrier will connect to the FSRU's ESD system. The FSRU's Primary ESD connection is an optical link and the secondary (back up) system is electrical.

- A trip wire will be connected between the FSRU and LNG CARRIER which shall activate ESD-2 in case the vessel moorings fail and the ships are moving apart. The trigger wire will be passed to the LNG CARRIER by FSRU personnel, where it shall be attached to the ship's structure (e.g. gutter plate secured to fishplate) using the integral carabine hook. The trip wire shall be disconnected by FSRU personnel before start of hose disconnection.

MOORING INTEGRITY & SAFETY CHECKS

- Prior to connecting the unloading hoses and/or commencement of the 'Pre-Unloading Meeting', the FSRU Master or his authorised deputy shall together with a Responsible LNG CARRIER's Officer check and confirm that all moorings are tight, brakes properly hardened up and winches are out of gear, fire fighting equipment is deployed, fire wires are rigged correctly, offshore manifolds are fully blanked and tight and other areas of general safety.

- On completion of confirming mooring integrity and safety and following the conclusion of the safety meeting connection of unloading hoses may proceed.

- The master of the LNG Carrier must ensure that the vessel is moored properly and safe according to the agreed mooring layout provided.

- In the process of conducting the mooring integrity other safety checks, as per the LNG CARRIER/FSRU Checklist, should be confirmed as far as possible. Any defects discovered during the inspections will be raised and discussed with the Master and Chief Officer. If necessary, an Observation Note will be raised by the FSRU. On completion of the visual inspection the LNG CARRIER/FSRU Safety Checklist shall be completed.

Water Sprays:

After when the LNG CARRIER is safely moored to the FSRU, and the hoses connected, the water curtain should be started, both on the LNG CARRIER and on the FSRU. The Fire hoses will always remain pressurised on both the FSRU and the LNG CARRIER.

Pre Cargo Transfer Meeting:

- After the LNG CARRIER/FSRU Safety Checklist has been completed and prior to the opening Custody Transfer readings a 'Pre Cargo Transfer Meeting' shall be held on board the LNG CARRIER.

- The attendees of this meeting shall be the LNG CARRIER's officer responsible for cargo management and the FSRU's responsible officer for cargo management, the independent cargo SURVEYOR, PETROBRAS representative and any other individual with a recognized and legitimate interest in the cargo transfer operation.

- The purpose of this meeting is to ensure that all aspects of the cargo transfer and associated activities are clearly understood and documented, using the FSRU's "Activity Schedule". The agenda for this meeting shall include as a minimum for normal cargo transfer, but not necessarily be limited to the following: Status of cargo tanks on arrival (temperature and pressure); Sequence of ESD tests; Cargo Hoses Cool-down procedure – Cooldown; Vapour handling; Ramp up; Bulk cargo transfer procedure.

- Ramp down; Drain purging and disconnecting; Ballasting; Anticipated weather and sea conditions; Communications between FSRU, LNG CARRIER & stand-by tugboat; Emergency Procedures and Marine Security.

COMMUNICATIONS ALONGSIDE

- Communications between LNG CARRIER and FSRU must be established before commencement of cargo transfer operations. Communications systems will be confirmed at the compatibility stage and FSRU configuration will be confirmed to the LNG carrier separately.

- The FSRU provides a hot phone between LNG carrier cargo control room and FSRU's cargo control room. In addition, FSRU will provide the LNG carrier with a handheld UHF Radio, spare battery and charger for the unloading operation. In addition, FSRU and LNG carrier will also monitor VHF Channel 16.

CONNECTING CARGO HOSES:

- LNG Carrier shall arrive with short distance pieces fitted to the cargo manifold assigned for unloading. All 4 (four) liquid and 1 (one) vapour strainers/filters shall be fitted to the LNG CARRIER assigned unloading lines and the filters should be 60 mm mesh.

- The twinset of cargo hoses is connected to the vessel manifolds using a 16" x 12" x 8" Tee (x2) wyereducing spool piece. The wye is connected to the 16" presentation flange of the short distance piece (SDP) or 20" x 16" reducer fitted on the manifold. Bolts and packings for the 16" flanges are provided by the LNGC. In some cases, threaded studs may be used in place of the bolts.

- Only the FSRU crane is expected to be used.

- For accommodate the hose and support the hose weight FSRU will supply a support saddle that must be installed to transfer the static and dynamic loads to the deck, while maintaining the minimum bend radius of the hose. Wooden blocks are included in each hose support saddle and are used to provide a spacer between the cargo manifold fish plate and the saddle when the ratchet straps are tightened.

- Earth connection should follow recommendation in ICS Guide for Liquid Gas.

- A trip wire will be connected between the FSRU and LNG Carrier which shall activate ESD-2 in case the vessel moorings fail and the ships are moving apart. The trip wires are responsible for activating ESD-1 and ESD-2 by distance between ships.

- The FSRU Officer-in-Charge at the LNG Carrier manifold or his delegate will guide the hose connection that must be done by LNG Carrier personnel on board it. All bolted flange connections shall be set with a torque of 340 – 360 Nm for 16" flanges and 250 – 270 Nm for the 8" flanges, each vessel shall be responsible to verify the torque settings on their respective manifolds. The FSRU will send a team consisting of Chief Officer, Cargo Engineer, Cargo assistant (Pumpman) and one AB to perform the connection of STS loading hoses

PRESSURE TEST & PURGING OF CARGO HOSES

- Cargo hoses will be pressure tested with nitrogen to a pressure of 4,5 bar (g) for liquid hoses and 1,5 bar(g) for vapour hose. A leak test will be carried out on the LNG CARRIER's manifold flange using a soap solution.

- Once the leak test has been completed, the hoses must be depressurised by opening the vent at the LNG CARRIER's manifold and Oxygen (O2 readings will be taken at this vent. The process of pressurizing and purging shall be repeated until the Oxygen (O2) content is less than 2% by volume.

GAS BURNING:

Gas burning on board of the LNG CARRIER is NOT permitted from just before opening CTMS prior to discharge until after closing CTMS (see "DEFINITIONS") after completion of discharge unless specifically agreed with FSRU Master and PETROBRAS Representative.

GAUGING – CUSTODY TRANSFER MEASUREMENT:

Before the LNG CARRIER's manifold valves are opened, gauging of the LNG CARRIER's tanks will take place on all occasions. This process is to be witnessed by the Responsible LNG CARRIER's Officer, the Responsible FSRU Officer, the Independent CARGO SURVEYOR, TRANSPETRO Representative and any other individual with a recognized and legitimate interest in the loading operation.

8.13 During the LNG/CNG transfer

MONITORING OF OPERATION PRESSURES AND FLOW RATES

The load transfer is recorded by the representatives of board and shore at the ship manifold at each hour. The FSRU controls the internal variables pressure and flow rate, which are checked in real time by means of the supervisory system available at control room. Any change to the operation conditions must be communicated and documented between the parts.

REPAIRS ON BOARD AND AT PIER

Repairs or maintenance services of any nature shall not be affected, if they involve or come to involve, risk of sparks or others means of ignition, while the ship is berthed to the Terminal piers. At extreme cases, all safety rules must be observed and followed. Repairs that involve the pier installations or cause any restriction to ship FSRU during the stay must be previously authorized by the Terminal, after formally requested by the ship representative.

SAFETY INSPECTION

The intermediate inspections, according to Annex A of “ISGOTT”, will be realized by the Safety Inspector during the LNG transfer operation from Carrier to FSRU, in continuous periods each 2 hours. The inspections at FSRU must be realized preferably at each 6 hours, when transferring CNG.

EMERGENCY SHUTDOWN

“Ship to Shore Link” (SSL1) and “Ship to Ship Link” (SSL2):

- The TRBA is equipped with optical fiber and electric cable reels.
- The FSRU has an SSL1 link interface interconnected with the ESD system of the control room of the TRBA, enabling systems to connect their respective ESD according SIGTTO recommendations.
- The FSRU also has a SSL2 interface equipped with fiber optic (6-way ST FO connector) and electric (37-way PYLE connector) cable reels, also with a pneumatic system, in order to connect with the LNG CARRIER.

EMERGENCY SHUTDOWN SYSTEM (ESD1 AND ESD2):

- The Pier has an emergency shutdown device, which interconnects the ship FSRU and the Terminal. The manual or automatic actuation by any party provokes the operation shutdown, stopping the pumps and closing of valves (ESD 1). The Terminal loading arms have an emergency disconnecting mechanism, which can be actuated by the Pier control room, or automatically, in case of ship distancing outwards the arms envelope (ESD 2). Any emergency situation must be dealt with according to the foreseen at the TRBA Emergency Response Plan.
- The functions of the ESD are safely stop CNG sent out from FSRU to TRBA or the LNG transfer between FSRU and CARRIER. ESD activation isolates them in the event of an emergency case, constituting the called ESD-1, which is initiated from failure to signal shutdown, among other factors, and it has because of stopping transfer pumps and automatic closing shutdown valves. ESD1 can also be activated by fire or smoke detection on jetty.
- The activation of the ERS installed on the CNG (TRBA) loading arms and the ERC LNG (EXPERIENCE) loading hoses, which configure the ESD-2, is initiated from the events of excessive relative motion between Carrier/FSRU or FSRU/TRBA or yet by a push bottom at jetty and FSRU control room. The primary function is protecting the physical integrity of the loading devices.
- ESD-1 and ESD-2 events have characteristics in common closing shutdown valves (SDV's). During the event ESD-2, the loading devices are disconnected, through the performance of its system of valves and couplers that allow the quick disconnecting and secure the loading

devices.

- The CNG ESD is configured in two different levels as follows:

- **ESD1:** shuts off feed pumps, interrupts the operations, depressurizes the jetty manifold and CNG loading arms and blocks the arm valves.

- **ESD2:** is the sequence of the ESD 1, complemented by the emergency disconnection of the arms.

  Note: Release of arms may cause serious injury to people in vicinity of the manifold. TRBA operators, FSRU and CARRIER crew shall be aware that despite audible alarms, in some cases the disconnection goes on automatically. When arms are connected, the best policy is to keep them far from them.

- The operations also must be provisionally suspended during occurrence of electrical discharges at the terminal proximities and/or strong winds. The terminal operation personnel are authorized to stop/suspend the operation in case of incompliance with any regulations and rules concerned with safety, universally admitted and adopted at the maritime transportation of LNG.

- The ship master has the right to interrupt the operation, if he has reasons to believe that the shore operations are not granting safety, since he gives a notice with antecedence to the pier operators. For any emergency, the TRBA interrupts the operations actually being realized for the use of all resources in the incident mitigation.

- The ships and terminal shall be informed that the operation will be stopped in the following situations: Fire; Explosion; Leakage; Sea Pollution; Change of pressures and flow rates; Change at product quality; Winds above 30 knots; Ship distancing from the Pier, outwards the arms envelope; High tensioning of ship lines at the mooring hooks; Communication fault with the supplier ship and regasification ship; Communication fault between the FSRU and terminal.

CNG TRANSFER SHUTDOWN

- Interruption of the CNG send out may occur if requested by CNCO. In the occurrence of such event, TRBA shall inform Experience to stop the CNG transfer at least 30 minutes in advance, allowing thus sufficient time for a normal shutdown to take place. After confirming with Experience the time of interruption, TRBA shall close the SDV valves close to the arm manifold.

- An emergency shutdown shall also occur if the following settings are reached:

OPERATION TEMPERATURE (ºC)	OPERATION PRESSURE (kgf/cm²)		
	WORKING	Alarm	Shutdown
BETWEEN 0°C to 50°C	80,0 kgf/cm2	85,0 kgf/cm2	85,7 kgf/cm2
ABOVE 50°C	SHUTDOWN AT ANY PRESSURE		
BELOW 0°C	SHUTDOWN AT ANY PRESSURE		

Table 10

- Under normal conditions, no shutdown shall be made without formal authorization from the CNCO, even in the situation where the scheduled quota has been reached.
- TRBA shall keep Experience updated regarding any interruption or ending requested from CNCO.

LNG SHIP TO SHIP OPERATIONS

The STS transfer shall be accomplished with the attendance of the crew from both ships and operators of TRBA.

8.14 CARGO HANDLING AND CONTROLLING NORMAL

DISCHARGING:

On completion of ESD tests the FSRU Chief Officer and the LNG CARRIER Chief Officer shall confirm that all systems are lined up and ready.

CONTROL OF RETURN GAS TO LNG CARRIER

Gas will be returned to the LNG CARRIER via free flow or by use of high duty compressors. It is the responsibility of the LNG CARRIER to monitor the pressure in its tanks and keep the FSRU informed. If pressure in the return gas line falls to 80 mbar(g) or below, then the LNG CARRIER must adjust its unloading rate until pressures return to normal levels. It is important that FSRU Cargo Control Room is informed if there is any problem with the ship taking return gas in order that the FSRU can increase gas burning and monitor tank pressures closely. It is important to note that the FSRU tanks pressure relief valves are set at 700 mbar(g).

COLD ESD TEST:

Before initiating the cold ESD test both LNG carrier and FSRU shall confirm their readiness to each other to conduct this test. The FSRU following a countdown will initiate the ESD. Both LNG carrier and FSRU will check their respective ESD valves for proper closure. Closing time of both LNG carrier and FSRU valves are to be recorded. Only one ESD is required.

BULK UNLOADING & FINISHING

- The FSRU will be in charge of the cargo transfer due to the FSRU being the receiving and production facility. The cargo operation will be executed in careful cooperation between the LNG CARRIER and the FSRU.

- Prevention of Rollover procedures is incorporated into FSRU's cargo operation manual and must be always complied with.

- The FSRU and the LNG CARRIER will line up respectively for the cargo transfer. When all parties have completed the cargo pipe lineup and are ready for cargo transfer, both FSRU and LNG CARRIER Officers in charge of transfer will acknowledge to each other that cargo transfer can commence.

- One of primary variables that dictate the LNG cargo transfer rate is the gas production rate from the FSRU into the pipeline. The LNG cargo transfer rate may have to be reduced in order to control FSRU tank pressure and levels within operating limits.

- During the LNG cargo transfer a careful check of the tank pressure must be maintained throughout. To maintain tank pressure on the LNG CARRIER BOG from the FSRU will be returned via the vapour system utilizing the pressure difference.

- Simultaneously with the cargo transfer the LNG CARRIER will be ballasting and the FSRU will be deballasting accordingly. Both the FSRU and the LNG CARRIER must have a stability plan prepared for this operation.

- At the final stage of the LNG cargo transfer the agreed ramp down procedures will be executed as agreed on the pre cargo transfer operation meeting.

DRAINING & INERTING OF CARGO HOSES

- Once the STS transfer is completed, the manifold ESD valves on the FSRU remain in the open position for the initial stage of Liquid freeing for approximately 20 min. On the LNGC the double-block valves shall be closed while the ESD valves remain open allowing the draining of the vertical risers. All hoses shall be drained from the LNGC towards the FSRU. Vapour line ESD valve on LNGC may be closed if it is necessary to avoid backflow from FSRU (LNGC should advise FSRU before closing the valve).

- After approximately 20 min the Liquid manifold ESD valves on the FSRU may be closed.

- During this operation a sea water spray shall be directed onto the STS hoses bight to speed up deicing and vaporization of remaining LNG in the hose. As the LNG boils off it will aid in pressure increase for displacing liquid in the lines. Both vessels shall conduct this operation together.

- Both vessels shall provide Nitrogen for purging hoses.

- The FSRU will then pressurize the liquid STS cargo hoses with nitrogen up to 4.5 bar(g).

- Purging will be continued with nitrogen back to LNG CARRIER until all cargo hoses contain less than 2% hydrocarbon by volume, measured at the manifold vent.

- Liquid cargo hoses may then be disconnected when hydrocarbon reads less than 2% by volume. Ensure the correct meter has been used – measuring hydrocarbon in an inert atmosphere.

  Note: the Cargo Hoses MUST NOT be disconnected until after the ESD has been inhibited (made safe).

- With the agreement of the LNG carrier the vapour manifold valve can then be closed, the vapour hoses purged with nitrogen until a reading of less than 2% hydrocarbon by volume is recorded after which the vapour hose can be disconnected.

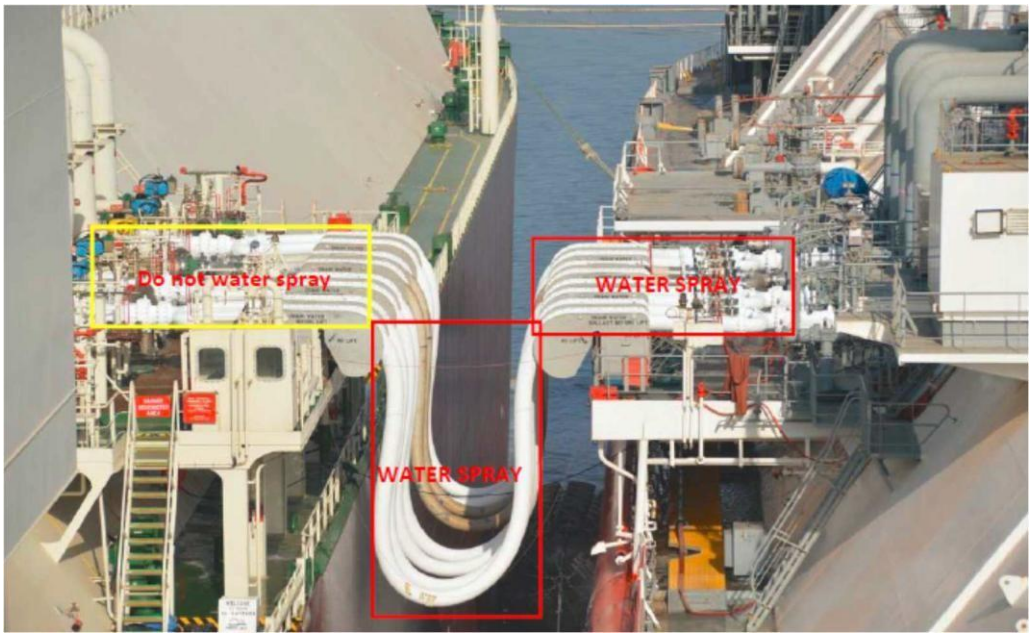


Figure 4

DISCONNECTING CARGO HOSES

- In general, the cargo transfer hoses shall be disconnected in reverse order from how they were rigged.
- The general order shall be to disconnect hoses, then wye reducer, then remove the saddle and finally collect all tools and miscellaneous equipment.

TRANSFERRED AND FULFILLMENT OF STAY DOCUMENTATION

- On completion of draining and purging of the cargo hoses and confirmation that all the LNG CARRIER's manifolds are closed, cargo tank gauging can commence.
- The Responsible LNG CARRIER's Officer, the Independent Cargo Surveyor, the PETROBRAS Representative and any other individual with a recognised and legitimate interest in the cargo transfer operation will be present to witness and verify.
- On completion of cargo calculation and agreement of the cargo quantity transferred, any documentation will be prepared by the LNG CARRIER, for signing by all interested parties.

REMOVAL OF ESD AND SSL CABLE

- The ESD cable will be removed after the cargo hoses disconnect. Ship personnel should be available to disconnect at this time.
- The SSL cable must stay connected until 15-20 minutes before the planned departure of the LNG Carrier. Prior to securing of the FSRU's personnel crew basket, Ship's Agent is to confirm to the FSRU's Chief Officer that all visitors and officials have disembarked the LNG CARRIER and that the Pilot is on board the LNG CARRIER.

8.15 Post Cargo Transfer Operations

CUSTODY TRANSFER MEASUREMENT

- After the end of the regasification and injection of CNG at the gas pipeline, there must be initiated the drainage of the loading arms utilized.
- The terminal operators will provide the depressurization of CNG arms. The ship representative must provide the drainage of the line stretch on board.
- The task of liquid drainage from the hoses utilized at the offload of LNG is assigned to the FSRU crew.
- The measurement of level, pressure and temperature of the tanks from the ships operating at the Terminal must be made according to the procedure defined by PETROBRAS.

FINAL MEASUREMENTS ON BOARD

- They will be done by the ship personnel and followed by the Terminal representatives. At measurements of Supplier ships, the measurement will be followed by Inspection Companies. The calculation of the quantities and the checking of the quality compliance will be done by an inspection company because it is an imported product. The Terminal representative will confer the calculations and quality certificates and, in case of divergences, will question the ship.
- Loads out of the specification will only be received with formal authorization from the area of Petrobras/Gas.
- The origin certificate may be used for the initial calculation and analysis of conformity. The calculation of quantities will be done based on the ship measurement, with the origin certificate of analysis supplied by the terminal. At the final calculation will be discounted the vapor returned to the Supplier ship.
- The LNG quality determination will be done by the chromatograph installed at the FSRU, during all the offload operation.
- The chromatograph report will be used for calculation of mass and calorific value at the operation end. At the detection of product out of specification at any time during the operation, it will be immediately suspended.
- The CNG Quality and Quantities will be based on the Resolution ANP nº 16, of 17, June, 2008 - DOU 18/06/2008 or another replacing it. The automatic chromatograph of CNG is installed at the CNG discharge line (downstream of the loading arms).
- Final release of the ship: it will be given after comparing the quantities

ASSISTING UNMOORING AND DEPARTURE

Prior to unmooring both vessels need to understand the order in which lines will be released in order that winches can be properly manned. Unmooring operations should be conducted in accordance
With procedures agreed between both master's and particular attention should be given to prevailing weather and tidal conditions.

- The services of a pilot and tug support
  is required by local regulation. Bow and stern thrusters, when fitted, may be used to full advantage. Consideration should be given to the effects that the use of the thrusters may have on the 'discharging ships and any other vessels alongside.

- Both vessels should provide crew to release the lines. Should the spring lines be used for springing off, due consideration should be given to the added force likely to be placed on the discharging ship's moorings. Secondary fenders should be ready to prevent contact between the hulls.

8.16 POLLUTION PREVENTION

The vessel will send a summary of its emergency plans in advance.

8.17 COMPLIANCE WITH THE ISPS CODE

See item: **2.3 DECLARATION OF SECURITY (ISPS CODE)**

9. Port or Anchorage Organization

9.1 PORT CONTROL OR VTS

The Port of Salvador doesn't have special service for traffic and navigation control.

9.2 MARITIME AUTHORITY

The Maritime Authority to which the TRBA is subordinated is the Port Authority of Salvador. If the Maritime Authority is at the limits of the ports of Salvador, Aratu and Madre de Deus, it has the responsibility to determine the actions and proceed the responsible by any incident within the port limits.

It determines that the visit of fiscal and sanitary authorities occurs before the ship berths at TRBA pier. The inspections for issuance of the SOC - Statement of Compliance for LNG vessels serving the TRBA when requested by the Maritime Administration, must occur before mooring with the Supplier at anchor in area 3 of the Salvador Port.

The ships intended to the TRBA will be visited by the Ports Health, Customs and Federal Police. The ship agent must take these measures in this sense.

All documents related to the ship dispatch at the last port visited must be shown to the port authorities.

9.3 PILOTAGE

The use of Pilots is compulsory for vessels
bound to TRBA from anchorage area. It's also compulsory for sailing or any other maneuver.

The three Pilotages Services ("Salvador Pilots", "Bahia Pilots" and "Todos os Santos Bay") of the BTS in standby 24 hours per day.

The request for Pilot will be made by the Ship Agent, with at least 3 hours of antecedence from the time of the ship leaving the anchorage and 4 hours before the beginning of the undocking at the TRBA. The contact may be made also by means of channel 16, VHF.

The Pilot embarkation will be done in the following coordinates: Lat.12º58'10" S – Long.38º 32'22" W, at the BTS.

The ship Master is the responsible by the maneuver. Any ship abnormalities or difficulties, like defects in mooring apparatus and equipment, rudder, deficiency of engines and/or boilers or lack of necessary equipment which could create harm for the ship navigation, berthing and undocking must be informed to the Maritime Authority.

If the Master decides not to follow the Pilot instructions to preserve the safety of ship maneuver, the Ports Captain must be communicated by written about it through its Agent. This fact shall also be reported to the TRBA by the Agency.

9.4 TUGS AND OTHER MARINE SERVICES

Criteria for use Tugs

To escort upon entry and departure from Todos os Santos Bay, one (1) tug and pilot are to be assigned to escort from pilot boarding station to anchorage and/or terminal, and vice versa.

It is hereby established the minimum of four (4) tugs for berthing and unberthing maneuvers, out of which none with less than 40 ton Bollard Pull (BP) and reaching a total sum of the not less than 200 BP.

One (1) Fire Fighter type vessel (may be one of the tugboats taking part in the maneuver) to remain in the surroundings of the vessels during the entire "ship to ship" LNG transfer operation between the FSRU and LNG carrier.

The Safety Inspectors of TRBA will make periodic inspections (each 6 months) at the tugs which will affect the terminal maneuvers. TRBA can provide more information about the tugs, if requested by the Master of LNG Carrier or Pilots.

Communication between Tugs and Ships:

The tugs are equipped with VHF for continuous communication ship/tugs during the mooring and undocking maneuvers. The watch is maintained during the 24 day hours on channel 16 to attend the needing in case of emergency.

During the maneuvers, in case of radio communication fault between the tugs and the ship, must be used International Code of Signals (from the Fourth Assembly of the Inter-Governmental Maritime Consultative Organization in 1965).

The Safety Inspector stays on board during the STS operations, and he can proceed the communications with tug boats and Pilots. The FSRU can contact direct the terminal control room during other periods.

Port Services:

The agency designated by LNG Carrier is responsible for arranging the motorboats to supply the cables maneuver that is mandatory for TRBA mooring.

The Terminal will provide the mooring service by means of two diesel powered motorboats to help in the cables maneuver during the docking and for undocking maneuvers only for ships which Agency is PETROBRAS. For vessels from another Agency's, this last one must provide the boats for mooring.

The Terminal may allow motorboats for material delivery and provisions for the FSRU ship ONLY by previous planning.

Carriers: provisions, crew change and other services must be done at the anchorage. The Terminal DOESN'T HAVE a motorboat for crew transportation.

Other Maritime Terminals

- ✓ **PORT OF SALVADOR:** Geographic Location and Characteristics: At Todos os Santos Bay, between Ponta do Monte Serrat, at North and Ponta de Santo Antônio, at South. Geographic Coordinates: Latitude: 13º 00" 37 S, Longitude: 38º 35' 00 W. UNCTAD Locode BR SSS TIME ZONE: GMT - 3 h. Address: Av. da França, 155 I, Comércio. CEP: 40.010-000. Salvador – Bahia. Tel: (71) 3320-1299/1268.
  E-mail: portosalvador@codeba.com.br.

- ✓ **MADRE DE DEUS TERMINAL - TEMADRE:** The Temadre is the main point of production outflow from the Mataripe Refinery (RLAM), which products supply the regions North and Northeast of the country. Geographic Location and Characteristics: situated at the Port of Madre de Deus, at the island with the same name, at approximately 15,5 miles from the anchorage at Southwest of Banco da Panela, on the Port of Salvador. Geographic Coordinates: Latitude - 12º 45'12" S, Longitude: 038º 37'27" W. UNCTAD Locode BR SSS TIME ZONE: GMT - 3 h. Address: Rua Milton Bahia Ribeiro, s/n, Suape, CEP: 42.600- 000. Madre de Deus - Bahia.
  Tel.: 55 (71) 99709-1604.

E-mail: giaont.tamdeus@transpetro.com.br

10. DEFINITIONS

ANP – National Petroleum Agency.

Authorized Craft - means any tug, barge, water boat authorized by the Maritime Authority to operate at TRBA and which complies with the safety requirements.

BP – "Bollard Pull" – Vessel longitudinal static tensile.

CARRIER – an LNG TANKER intended to operate at Bahia LNG Regasification Terminal – TRBA, moored alongside the FSRU in double banked configuration for transferring LNG to FSRU (Ship to Ship). The same as LNGC or LNG CARRIER.

CARRIER's Master - the Captain of a LNG CARRIER or his Chief Officer or any person who for the time being is duly authorized to be in charge of the LNG CARRIER.

CNCL – the Pipeline Operation Control Center (Centro Nacional de Controle e Logística) is located at TRANSPETRO headquarters, in Rio de Janeiro.

CNG (or HPNG) - Compressed Natural Gas (or High Pressured Natural Gas).

Cool Down - cooling of the cargo tanks, lines and equipment to gradually meet the cargo temperature, thereby avoiding fracture of the material. CARRIER shall carry out the cool down process by transferring LNG at low rate to FSRU.

CTMS - Custody Transfer Measuring System.

DHN - is the department of the Brazilian Navy (Diretoria de Hidrografia e Navegação).

Emergency Response Plan - Plan establishes a set of guidelines for emergency response, defining roles and responsibilities for emergency situations.

ERS – Emergency Release System installed on CNG arms and LNG hoses.

ESD – Emergency Shutdown, The safety shutdown is configured in two different levels: o ESD1: shuts off FSRU pumps, interrupts the operations, blocks the CNG loading arms or LNG loading hoses valves and release the pressure. ESD2: is the sequence of the ESD, complemented by the emergency disconnection of either CNG arms or LNG hoses.

FSRU - Floating Storage and Regasification Unit. It is the FSRU Vessel.

FSRU Master - the person accountable and responsible, on behalf of EXCELERATE ENERGY, for connection and disconnection of loading hoses, communication and shutdown cables, pre/post discharge meeting, discharge procedures and emergency response and for all activities associated with the ship to ship transfer of LNG CARRIER vessels to FSRU and operation of the regasification system and other systems onboard the FSRU.

Harbor Master (or Port Captain) - means the Maritime Authority or its deputy, the person in charge of Bahia State Ports including all ports in Todos os Santos Bay. Called by "Capitania dos Portos da Bahia". This C.P.BA is responsible to aprove the "Port Rules and Regulations" ("NPCP" - Normas e Procedimentos da Capitania dos Portos da Bahia).

Hot Work - means work involving sources of ignition or temperatures sufficiently high to cause the ignition of a flammable gas mixture. This includes any work requiring the use of welding, burning or welding equipment, blow torches, power-driven tools, portable electrical equipment which is not intrinsically safe or contained within an approved explosion-proof housing, sandblasting, internal combustion engine or any other tool that could generate sparks.

HPNG – High Pressured Natural Gas –
Same as CNG.

Inert Gas - means a gas such as Nitrogen or Carbon Dioxide, or a mixture of such flue gases, containing insufficient oxygen to support the combustion of hydrocarbons.

ISGOTT - International Safety Guide for Oil Tanker and Terminal.

MOP - Mutual Operation Procedure, signed by Transpetro and Excelerate Energy, defining the procedures (for CNG and LNG operations) and emergency actions to be taken by TRANSPETRO, CARRIERS and FSRU.

NOR – Notice Of Readiness

PETROBRAS - the TRBA's owner. The company responsible for building and hiring TRANSPETRO to run and operate the TRBA facilities. Also hires the FSRU to storage and regasifying LNG.

PFSO – Port Facility Security Officer

Port Authority – The TRANSPETRO Administration (TEMADRE's General Manager) answer as Port Authority regarding to TRBA operations, as per Regulation n. 64/2015, 17/August, 2015 from CPBA.

Ready To Operate - statement from operator or vessel duty officer, informing that the alignments and other facilities are in operating conditions, ready to start or restart transfer and send out operations.

Responsible LNG CARRIER's Officer - the Master or any Officer to whom the Master may delegate authority for any operation or duty on board of LNG CARRIER.

Safety Inspector - an TRANSPETRO professional, responsible to carry out before STS operation a Safety Inspection jointly to FSRU's Representative by the criteria of Ship-Shore Safety Checklist from OCIMF/ISGOTT and Ship To Ship Safety Checklist from SIGTTO. He will assist the Masters in the STS operations, including mooring, unmooring and the complete cargo transfer.

STS – Ship to Ship

STS Superintendent - The advisory control (including mooring, unmooring and the LNG transfer) shall be undertaken by the Experience's Master.

Ship-to-Shore Link (SSL1) - the TRBA and FSRU have a ship-to-shore link interface, enabling systems to connect their respective Emergency Shutdown System (ESD) according SIGTTO recommendations.

Ship-to-Ship Link (SSL2) - similarly, the FSRU has a ship-to-ship connections enabling vessels to perform an ESD during STS transfer, if necessary, with a fiber optic and electric cable as well.

SIGTTO – The Society of International Gas Tanker and Terminal Operators Ltd.

Surveyor - an independent surveyor appointed to witness the LNG STS transfer and the calculation quantity delivered.

TRANSPETRO - It's the PETROBRAS
subsidiary responsible to run and operate PETROBRAS Terminals alongside Brazilian coast. There is a TRANSPETRO General Operational Manager in charge for Bahia State in Madre de Deus island responsible for the safety operation of TRBA.

11. APPENDICES

APPENDIX 1 - OCIMF SHIP/SHORE SAFETY CHECKLIST

FOR LNG AND CNG OPERATIONS

SHIP'S NAME		**VOY**	
BERTH		**PORT**	
DATE OF ARRIVAL		**TIME OF ARRIVAL**	

PART "A" - BULK LIQUID GENERAL – PHYSICAL CHECKS

BULK LIQUID – GENERAL	FSRU	LNG CARRIER	TERMINAL	CODE	REMARKS
1. There is safe access between the ship and shore.				**R**	
2. Is Are the FSRU and the LNG carrier securely moored?				**R**	
3. The agreed ship/shore communication system is operative.				**A R**	System Back up system
4. Emergency towing-off pennants are correctly rigged and positioned.				**R**	Verify 7.5 of Port Information
5. The ship's fire hoses and fire-fighting equipment is positioned and ready for immediate use.				**R**	
6. The terminal's fire-fighting equipment is positioned and ready for immediate use.				**R**	
7. The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.					
8. The terminal's cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended.					
9. The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection.					
10. Scuppers and save alls on board are effectively plugged and drip trays are in position and empty.				**R**	
11. Temporarily removed scupper plugs will be constantly monitored.				**R**	
12. Shore spill containment and sumps are correctly monitored.				**R**	
13. The ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted.					
14. The terminal's unused cargo and bunker connections are properly secured with blank flanges fully bolted.					
15. All cargo, ballast and bunker tank lids are closed.					

16. Sea and overboard discharge valves, when not in use, are closed and visibly secured.					
17. All external doors, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open.				**R**	
18. The ship's emergency fire control plans are located externally.					Location:

PART "B" - BULK LIQUID GENERAL – VERBAL VERIFICATION

BULK LIQUID – GENERAL	FSRU	LNG CARRIER	TERMINAL	CODE	REMARKS
19. The ship is ready to move under its own power? How long time required before move under own power?				**P R**	
20. There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and on the terminal.				**R**	
21. There are sufficient personnel on the FSRU, LNG carrier and ashore to deal with an emergency.				**R**	
22. The procedures for cargo, bunker and ballast handling have been agreed.				**A R**	
23. The emergency signal and shutdown procedure to be used by the FSRU, LNG carrier and shore have been well explained and understood.				**A**	
24. The hazards associated with toxic substances in the cargo being handled have been identified and understood.					
25. An International Shore Fire Connection has been provided.					
26. The agreed tank venting system will be used.				**A R**	Method
27. The requirements for shutdown operations have been agreed.				**R**	
28. The operation of the P/V system has been verified.					
29. Where a vapor return line is connected, operating parameters have been agreed. FSRU and LNG carrier to enter requested tank pressure.				**A R**	FSRU Tank Pressure: _____mb LNG Carrier Tank Pressure: _____mb
30. Independent high level alarms, if fitted, are operational and have been tested.				**A R**	
31. Adequate electrical insulating means are in place in the ship/shore connection.				**A R**	
32. Shore lines are fitted with a non-return valve or procedures to avoid back filling have been discussed.				**P R**	
33. Smoking rooms have been identified and smoking requirements are being observed.				**A R**	Nominated smoking rooms:
34. Naked light regulations are being observed.				**A R**	
35. Ship/shore telephones, mobile phones and pager requirements are being observed.				**A R**	
36. Hand torches (flashlights) are of an approved type.					
37. Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switched off.					

38. Portable VHF/UHF transceivers are of an approved type.					
39. The ship's main radio transmitter aerials are earthed and radars are switched off.					
40. Electric cables to portable electrical equipment within the hazardous area are disconnected from power.					
41. Window type air conditioning units are disconnected.					
42. Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapour, are closed.					
43. There is provision for an emergency escape.					
44. The maximum wind and swell criteria for operations have been agreed.				**A**	Stop cargo at: Disconnect at Unberth at:
45. Security protocols have been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate.				**A**	
46. Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting or purging ship's tanks, or for line cleaning into the ship.				**A P**	
47. Are the requirements for use of Galley equipment and cooking appliances being observed?					

If the ship is fitted, or is required to be fitted, with an Inert Gas System, the following statements should be addressed.

Inert Gas System	**FSRU**	**LNG CARRIER**	**TERMINAL**	**CODE**	***Remarks***
48. The IGS is fully operational and in good working order.				**P**	
49. The fixed and portable oxygen analyzers have been calibrated and are working properly.				**R**	

PART "D" - BULK LIQUIFIED GASES – VERBAL VERIFICATION

Bulk Liquefied Gases	**FSRU**	**LNG CARRIER**	**TERMINAL**	**CODE**	**Remarks**
1. Material Safety Data Sheets are available giving the necessary data for the safe handling of the cargo.					
2. The water spray system is ready for immediate use.					
3. There is sufficient protective clothing and equipment (including self-contained breathing apparatus) is ready for immediate use and is suitable for the product being handled.					
4. Hold and inter-barrier spaces are properly inerted or filled with dry air, as required.					
5. All remote control valves are in good working order.					
6. The required cargo pumps and compressors are in good order, and the maximum working pressures have been agreed between ship and shore.				**A**	
7. Re-liquefaction or boil off control equipment is in good order.					

8. The gas detection equipment has been properly set for the cargo, is calibrated, has been tested and inspected and is in good order.					
9. Cargo system gauges and alarms are correctly set and in good order.					
10. Emergency shutdown systems have been tested and are working properly.					
11. The FSRU, the LNG carrier and Terminal have informed each other of the closing rate of ESD valves, automatics valves or similar devices.				**A**	FSRU.____S LNG Carrier Terminal s s
12. Information has been exchanged between FSRU - LNG carrier and the Terminal on the maximum / minimum Tank & Manifold pressure, cargo transfer rates, Ramp Up/Ramp down?				**A**	See LNG Cargo Handling Agreement.
13. Cargo tanks are protected against inadvertent overfilling at all times while any cargo operations are in progress.					
14. The compressor room is properly ventilated, the electrical motor room is properly pressurized and the alarm system is working.					
15. Cargo tank relief valves are set correctly and actual relief valve settings are clearly and visibly displayed. (Record settings bellow.)					

	FSRU		**CARRIER**			**FSRU**		**CARRIER**
TANK NR. 1	____ mb				**TANK NR. 4**	____ mb		
TANK NR. 2	____ mb				**TANK NR. 5**	NA		
TANK NR. 3	____ mb				**TANK NR. 6**	NA		

REMARKS

*Coding of Items: The presence of the letters **"A", "P" or "R"** in the column entitled "**Code**" indicates the following:*
***A** ('Agreement'). This indicates an agreement or procedure that should be identified in the "Remarks" column of the Checklist or communicated in some other mutually acceptable form.*
***P** ('Permission'). In the case of a negative answer to the statements coded "P", operations should not be conducted without the written permission from the appropriate authority.*
***R** ('Re-check'). This indicates items to be re-checked at appropriate intervals, as agreed between both parties, at periods stated in the declaration.*

A crew seaman must stay full time nearby ship's manifold while operating.
VHF Call's Channel – 16 *Conversation's channel* – 9/13
Telephones :

Seals Numbers:
Oil Water Separator: _____

ODME/*Oil Discharge Monitoring Equipment*:_____

Emergency Bilge: _____

Sewage _____ *Tank*:

Sea _____ *Chest:*

LNG CARRIER *NAME/STAMP*	**LNG FSRU** *NAME/STAMP*	***SAFETY INSPECTOR*** *NAME/STAMP*	***LOADING MASTER*** *NAME/STAMP*

Appendix 2 – LNG SHIP TO SHIP SAFETY CHECKLIST

(OCIMF/SIGTTO/ICS/CDI)

FSRU–LNG/CSafetyCheckList

LNG Carrier's Name:		Berth: **TRBA Salvador - FSRU LNG/C "Experience"**	
Date of Arrival:		Time of Arrival:	

INSTRUCTIONS FOR COMPLETION:

The safety of operations requires that all questions should be answered affirmatively by clearly ticking (✓) the appropriate box. If an affirmative answer is not possible, the reason must be given and agreement reached upon appropriate precautions to be taken between the LNG CARRIER and the FSRU. Where any question is considered to be not applicable, then a note to that effect should be inserted in the remarks column.

A box in the columns 'LNG CARRIER' and 'FSRU' indicates that checks should be carried out by the party concerned.

The presence of the letters **A**, **P** or **R** in the column 'Code' indicates the following:

- **A -** (Agreement). This indicates an agreement or procedure that should be identified in the 'Remarks' column of the checklist or communicated in some other mutually acceptable form.
- **P** - (Permission). In the case of a negative answer to the statements coded 'P' operations should not be conducted without the written permission from the appropriate authority.
- **R** - (Re-check). This indicates items to be rechecked at appropriate intervals, as agreed by both parties, at periods stated in the declaration.

PART 'A' – BULK LIQUID GENERAL – Physical Checks

General	LNG Carrier	FSRU	TRBA	Code	Remarks
1. Is there safe access between LNG CARRIER and FSRU?				**R**	Man Riding Crane & Basket
2. Is the LNG CARRIER securely moored?				**R**	
3. Is the FSRU securely moored?				**R**	
4. Is the agreed LNG CARRIER/FSRU communication system operative?				**AR**	1. HOTLINE 2. UHF CH.10 3. VHF CH. 13
5. Are emergency towing wires correctly rigged and positioned?				**R**	Verify 7.5 of Port Information

6. Are the LNG Carrier's and FSRU fire hoses and fire- fighting equipment positioned and ready for use				**R**	
7. Are the LNG Carrier's and FSRU's cargo and bunker hoses pipelines and manifolds in good condition, properly rigged and appropriate for the service intended?					
8. Are the FSRU's cargo hoses in good condition, properly rigged and appropriate for the service intended?					
9. Are FSRU's and LNG Carrier's cargo transfer system sufficiently isolated and drained to allow safe removal of blank flanges prior to connection					
10. Are scuppers and save-alls on board effectively plugged and drip trays in position and empty?				**R**	
11. Are FSRU's and LNG Carrier's temporarily removed scupper plugs constantly monitored				**R**	Deck Watch
12. Are FSRU's and LNG Carrier's spill containment and sumps correctly managed				**R**	
13. Are the LNG Carrier's unused cargo and bunker connections properly secured with blank flanges fully bolted?					
14. Are the FSRU's unused cargo connections properly secured with blank flanges fully bolted?					
15. Are all cargo, ballast and bunker tank lids closed?					
16. Are sea and overboard discharge valves, when not in use, closed and visibly secured?					

PART 'B' - BULK LIQUID GENERAL-Verbal Verification

General	LNG Carrier	FSRU	TRBA	Code	Remarks
1. Is the LNG Carrier ready to move under its own power?				**PR**	
2. Is there an effective deck watch in attendance on board and adequate supervision in the FSRU and on the LNG Carrier?				**R**	
3. Are there sufficient personnel on board and to deal with an emergency?				**R**	
4. Have the procedures for cargo, bunker and ballast handling been agreed?				**AR**	
5. 25. Has the emergency signal to be used by the LNG Carrier and FSRU been explained and understood?				**A**	**FSRU:** . . . . . **LNG/C: TRBA:**
6. .Have Material Safety Data Sheets (MSDS) for the cargo transfer been exchanged where requested?				**PR**	
7. Have the hazards associated with toxic substances in the cargo being handled been identified and understood					
8. Has an International Shore fire connection been provided				**R**	Location:

9. Has the tank venting been agreed for use				**AR**	Venting to atmosphere permitted only in emergency when access to FSRU vapour system not possible.
10. Have the requirements for closed operations been agreed?				**R**	
11. Has the operation of the P/V system been Verified				**R**	
12. Have operating parameters been agreed for the vapour return line?				**AR**	Free flow return to LNG CARRIER. FSRU/ LNG CARRIER to control required gas flow.
13. Are independent high level alarms operational and been tested?				**AR**	
14. Are adequate insulating means in place in the LNG Carrier/FSRU connection?				**AR**	No bonding cable. Insulated loading hoses flanges
15. Are FSRU lines fitted with a non-return valve or procedures to avoid back filling been discussed				**AR**	NRV's fitted on FSRU
16. Have Smoking rooms been identified and are smoking requirement being observed?				**AR**	FSRU: Conference Room & Recreation Room LNG/C:
17. Are naked light regulations being observed?				**AR**	As per procedure
18. Are LNG CARRIER/FSRU telephones, mobile phone and pager requirements being observed?				**AR**	As per procedure
19. Are hand torches (flashlights) of an approved Type?					
20. Are fixed VHF/UHF transceivers and AIS equipment on the correct power mode or switched off?					
21. Are portable VHF/UHF transceivers of an approved type?					
22. Are the LNG Carrier's main radio transmitter aerials earthed and radars switched off?					
23. Are electric cables to portable electrical equipment within the hazardous area disconnected from power?					
24. Are window-type air conditioning units disconnected?					
25. Is positive pressure being maintained inside the accommodation, and are air conditioning intakes, which may permit the entry of cargo vapours closed?					
26. Have measures been taken to ensure sufficient mechanical ventilation in the pump room?		N/A		**R**	
27. Is there provision for and emergency escape?					FSRU – P-side Terminal gangway
28. Have the maximum wind and swell criteria been agreed?				**A**	Stop cargo at: ___ knots wind sp. Disconnect at: > ___ knots wind sp. and start undocking procedure
29. Have Security protocols been agreed between the LNG CARRIER Security Officer and the Port Facility Security Officer?				**A**	MARSEC Level: ___
30. Where appropriate, have procedures been agreed for receiving nitrogen supplied from FSRU, either for inerting or purging LNG Carrier's tanks or for line clearing into the LNG Carrier?				**A P**	Only for purging loading hoses.

RT 'D' – BULK LIQUEFIED GASES – Verbal Verification

Bulk Liquefied Gases	LNG Carrier	FSRU	TRBA	Code	Remarks
1. Are Material Safety Data Sheets available giving the necessary data for the safe handling of the cargo					
2. Has a manufacturer's inhibition certificate, where applicable been provided?	N/A	N/A	N/A	**P**	LNG only
3. Is the water spray system ready for use?					
4. Is sufficient suitable protective equipment (including self-contained breathing apparatus) and protective clothing ready for immediate use?					
5. Are holds and inter-barrier spaces properly inerted or filled with dry air as required?					
6. Are all remote control valves in working order?					
7. Are the required cargo pumps and compressors in good order, and maximum working pressures been agreed between LNG CARRIER and FSRU?				**A**	18n kpa
8. Is re-liquefaction or boil-off control equipment in good order?					BOG
9. Is gas detection equipment properly set for the cargo, calibrated, been tested and inspected and in good order?					
10. Are cargo system gauges and alarms correctly set and in good order?					
11. Have emergency shutdown systems been tested and are working properly?					
12. Have LNG Carrier and FSRU informed each other of the closing rate of ESD valves, automatic valves or similar devices?				**A**	LNG Carrier FSRU
13. Has information been exchanged between LNG Carrier and FSRU on the maximum/minimum temperatures/pressures of the cargo to be handled?				**A**	Temp: -157°C – (160°C) Pressure: 5-18kPa
14. Are cargo tanks protected against inadvertent overfilling at all times while any cargo operations are in progress?					
15. Is the compressor room properly ventilated; the electrical motor room properly pressurized and is the alarm system working?					
16. Are cargo tank relief valves set correctly and actual relief valve settings clearly and visibly displayed? Tank No 1…….. Tank No 2…… Tank No 3…… Tank No 4…… Tank No 5…… Tank No 6…… Tank No 7…… Tank No 8……					FSRU cargo tank valve settings: Tank No.1 - _____ mbars Tank No.2 - _____ mbars Tank No.3 - _____ mbars Tank No.4 - _____ mbars

PART E - Pre-transfer checklist for in-port STS Cargo Transfer

In-port STS Cargo Transfer	LNG Carrier	FSRU	TRBA	Code	Remarks
1. A standard pre-transfer checklist, such as the ISGOTT ship/shore safety checklist or equivalent, has been satisfactorily completed and arrangements have been made for repetitive checks during the transfer					
2. Required regional checklists have been completed					
3. Written permissions for cargo operation to take place are available to all Responsible Persons					
4. The formal risk assessment has been communicated by the transfer organizer and reviewed by involved parties					
5. The general contingency plan for the cargo transfer operation has been communicated by the transfer organizer and reviewed by involved parties					
6. Security information has been exchanged and, if required, a Declaration of Security has been completed					
7. Suitable fenders are rigged correctly to prevent contact of the vessels					
8. Fire axes, or suitable cutting equipment, are in place at the fore and aft mooring stations					
9. Present and forecast weather and sea conditions have been considered					
10. A means of access is in place to allow personnel to safely transit between the vessels					
11. Cargo specifications and any requirements for inerting, heating, reactivity and inhibitors have been exchanged					
12. The cargo transfer operation is to be completed under closed conditions					
13. Where applicable, procedures for vapour control/balancing have been agreed					
14. All cargo monitoring systems, including level gauges, high level alarms, pressure gauges and alarms, have been tested and are operational					
15. Access to the cargo deck is restricted and controlled during cargo transfer operations					
16. All personnel engaged in the cargo operation are provided with appropriate PPE including, where necessary, personal gas detectors/monitors					
17. Cargo hoses have been pressure tested within the prescribed period and documentation is available on board					

18. The construction and material of the cargo hoses is suitable for the temperature and nature of the product(s)					
19. Where electrically continuous hoses are used, the hoses are connected to the vessel with the insulated flange before being passed to the other vessel for connection					
20. The cargo hose string is of adequate length and properly supported					
21. The cargo lines are lined up in accordance with the cargo operation plan					
22. Spill response equipment is on station and ready for immediate deployment					
23. Where applicable, fire-fighting provision has been made for unmanned barges					
24. Spaces to be routinely monitored for any build-up of flammable and/or toxic vapour have been identified					

PART F - During Transfer checklist for in-port STS Operations

During Transfer – In-port STS Operations	LNG Carrier	FSRU	TRBA	Code	Remarks
1. Present weather and sea conditions are within the agreed limits				R	
2. Personnel engaged in the cargo transfer operation are wearing appropriate PPE				R	
3. Cargo hose strings, manifold connections and cargo systems are free of any leakage				R	
4. Cargo hoses are properly supported, taking into account changing freeboards and any movement between the vessels				R	
5. All cargo monitoring systems, including level gauges, high level alarms, pressure gauges and alarms, are functioning correctly				R	
6. The cargo transfer operation is continuing under closed conditions				R	
7. The sea surface around the vessels is periodically visually checked for any sign of pollution				R	
8. All identified spaces are being routinely monitored for any build-up of flammable and/or toxic vapour				R	
9. All mooring lines are correctly tensioned and managed during the cargo transfer operation				R	
10. Where rigged in accordance with local requirements, emergency towing-off pennants are adjusted throughout the cargo transfer operation				R	Verify 7.5 of Port Informati on
11. On completion of cargo transfer to or from a tank, the tank is secured				R	
12. Levels in all cargo and ballast tanks, including those not being worked, are routinely monitored				R	

DECLARATION:
We the undersigned have checked, where appropriate jointly, the items on this checklist and have

satisfied ourselves that the entries we have
made are correct to the best of our knowledge.
We have also made arrangements to carry out repetitive checks as necessary and agreed that those items marked with the letter 'R' in the column 'Code' should be re-checked at intervals not exceeding 6 hours.
If to our knowledge the status of any of any item changes, we will immediately inform the other party

For LNG CARRIER			For FSRU		For TRBA
Name:	**Name:**			**Name:**	
Rank:	**Position:**			**Position:**	
Signature:	**Signature:**			**Signature:**	
Date:	**Date:**			**Date:**	

Updated: Date/Time/Signature	

Record of repetitive checks:
If needed additional pages of repetitive checks should be added.

Date:							
Time:							
Initials for LNG/C:							
Initials for FSRU:							
Initials for TRBA:							

Appendix 3 – NATIONAL PETROLEUM AGENCY- REGULATION nº 16 (June 17th, 2008)

Table I: Natural Gas Specification (1)

CARACTHERISTIC	UNIT	LIMIT(2) (3)			Method	
		North	Northeast	South, Southeast, Central West	ASTM	ISO
Higher Heating Value (4)	kJ/M³ kWh/m³	34.000 to 38.400 9,47 to 10,67	35.000 to 43.000 9,72 to 11,94		D 3588	6976
Wobbe Index (5)	kJ/M³	40.500 to 45.000	46.500 to 53.500		-	6976
Methane Number(6), min.		(3)	65			15403
Methane, min	% mol.	68,0	85,0		1945	6974
Ethane, max.	% mol.	12,0	12,0		1945	6974
Propane, max.	% mol.	3,0	6,0		1945	1945

Butane and heavier, max.	% mol.	1,5	3,0		1945	1945
Oxygen, max.	% mol.	0,8	0,5		1945	6974
Inert (N2 + CO2), max.	% mol.	18,0	8,0	6,0	1945	6974
CO2 ,max	% mol.	3,0			1945	6974
Total Sulphur, max. (8)	mg/m3	70			D5504	6326-2 6326-5 19739
Gas hydrogen sulfide (H_2S), max	mg/m^3	10,0	13,0	10,0	D5504 6228	6326-3
Dew point of water at 1atm, max.	ºC	-39	-39	-45	D5454	6327 10101-2 10101-3 11541
Dew point of hydrocarbons at 4,5 MPa, max (10)	^0C	15	15	0		6570
Mercury, max. (11)	µg/m³	To be noted				6978-1 6978-2

Note: See Remarks on the ANP Original document.

Appendix 4 - EXPERIENCE MOORING OPERATION PROCEDURE (by Excelerate Energy)

INTRODUCTION:

The FSRU Experience is moored portside alongside the jetty. Static mooring of FSRU to the jetty is accomplished by wire rope to the mooring and breasting dolphins. 11m tails are fitted to provide the necessary elasticity in the mooring system between the FSRU & jetty.

The FSRU uses the toggle and pin method for quick release hooks and fenders on its starboard side for receiving LNG CARRIER s.

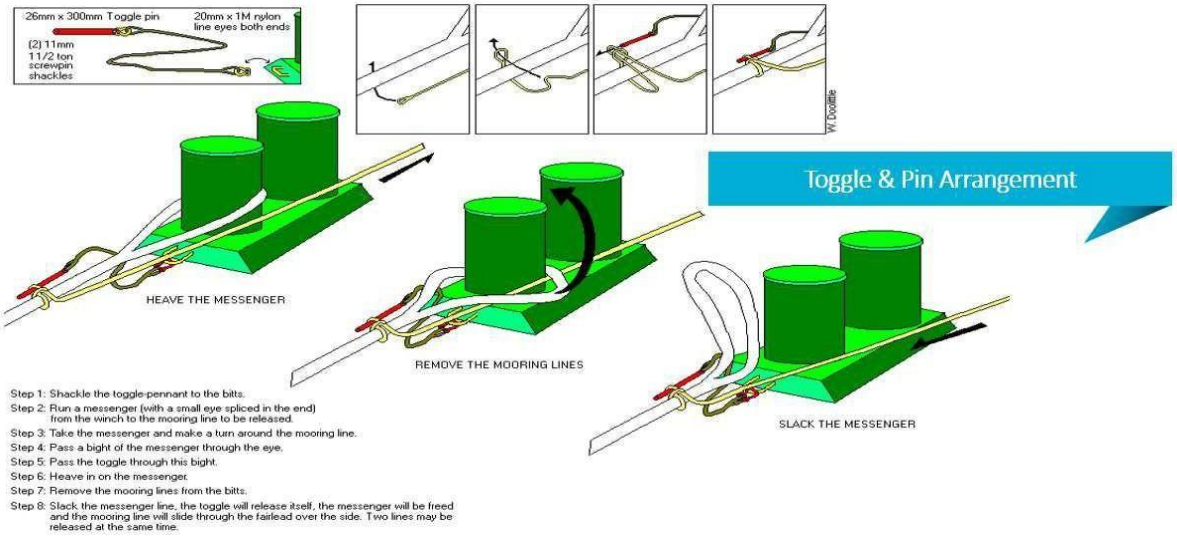


Figure 3 - Toggle & Pin Arrangement

BB) INITIAL MOORING SEQUENCE:

Step 1	Aft springs 7 - 8 from Excel to Experience Fwd springs 7 - 8 from Excel to Experience		messenger messenger		7 first 7 first
Step 2	Aft Stern line 1 from Excel to Shore Fwd Head line 1 from Excel to Shore		mooring boat mooring boat		
Step 3	Aft Breast 2 from Excel to Experience Fwd breast 6 from Excel to Experience		mooring boat mooring boat		
Step 4	Aft breasts 5 - 6 from Excel to Experience Fwd breasts 4 - 5 from Excel to Experience		mooring boat mooring boat		6 first 5 first
Step 5	Aft breasts 3 - 4 from Excel to Experience		mooring boat		4 first
	Fwd Breast 2 - 3 from Excel to Experience		mooring boat		3 first
CC) UNMOORING SEQUENCE:					
Step 1	Aft springs 7 - 8 From Experience to Excel Fwd springs 7 - 8 From Experience to Excel		1 by 1 1 by 1		
Step 2	Aft stern line 1 from Shore to Excel				
	Fwd head line 1 from Shore to Excel				

Step 3	Aft breast 2 From Experience to Excel Fwd breast 6 From Experience to Excel		

Step 4	Aft breasts 3 - 4 From Experience to Excel Fwd breasts 2 - 3 From Experience to Excel		2 by 2 2 by 2
Step 5	Aft breasts 5 - 6 From Experience to Excel		2 by 2
	Fwd breasts 4 - 5 From Experience to Excel		2 by 2

DD) FSRU MOORING EQUIPMENT:

Steel wire 280m / Line Diameter 42 mm / MBL 124 tonnes / Length of Tail is 11 m / bexcord-polyester

EE) MOORING PROCEDURES:

LNG CARRIER will moor portside alongside to the FSRU. All mooring lines will be made fast to designated bitts on the FSRU. Larger carriers, e.g. Q-Flex will moor to both the FSRU and the mooring dolphins quick release hooks.

It is the responsibility of the LNG CARRIER's Master to ensure that his vessel remains securely moored at all times. All moorings will be passed from LNG CARRIER to the FSRU using a combination of LNG CARRIER's heaving line and messengers on an endless loop.

This mooring procedure requires close cooperation between LNGC's crew and the FSRU crew to ensure a smooth and safe mooring operation.

LNG CARRIER's must have a sufficient supply of good quality heaving lines of sufficient length to reach the furthest dolphin as per the agreed mooring plan.

The FSRU will provide the messenger lines. LNG CARRIER Berthing alongside the FSRU can only berth port side alongside the FSRU because of the requirement to berth "bow out".

All vessels must have sufficient usable wires or high modulus ropes (HMPE) with appropriate pennants on winches forward and aft that can be used effectively to moor the vessel in accordance with OCIMF criteria.

Mooring ropes or wires are secured only to the proper fixtures provided for this purpose. Selftensioning winches must not be used in automatic mode and winch brakes must be kept hardened up, except when moorings are being tended. FSRU has 125 and 72T bollards (ref to MOP-LNG-TRBA2 ch 2.11)

Mooring wires and ropes with dedicated winch drums must be spooled in the correct direction on the winch drum.

Mooring lines used in a common direction (head/ stern/ breast/springs) shall be of similar breaking strength, elasticity, and material. Under no circumstances will a mixture of wire and synthetic ropes be accepted in a common direction or to the same Dolphin.

On completion of mooring, winches should be out of gear with the brakes 'hardened up'. Winches must not be left on 'automatic tension'.

It is the LNG CARRIER Master's responsibility
to ensure that:

- Their vessels are securely moored in line with the foregoing as applicable and with due regard to the current weather forecast.
- A strict watch, of sufficient and proficient personnel, shall be maintained to ensure that moorings are tended, as required, to prevent slack or over taut lines, and undue movement of the Vessel.
- The weather forecast is monitored during the Vessel's stay alongside, and appropriate action taken in advance of deteriorating weather.

All vessels must have had a mooring study completed as part of the compatibility review between LNG CARRIER and the FSRU before the vessel can be accepted by Petrobras and prior to loading at the loading port.

The mooring plan will be submitted to Petrobras and the FSRU Master via Owners/Charterers for agreement as soon as possible prior to the vessel being accepted for cargo delivery.

After an agreement has been reached, deviation from the plan is not permitted without the agreement of FSRU Master.

The berthing philosophy is to maneuver the LNG CARRIER alongside and then move into the berth pocket into a position parallel to the FSRU at a distance not less than 50 meters and with the vessel stopped in the water.

The tugs will then push the vessel onto the FSRU. To avoid damage to the FSRU fenders the vessel should be landed squarely on the fenders with a contact speed not exceeding 10 cm/second. Pilots will be provided with a portable harbor marine docking aid system which they will take onboard the LNG CARRIER.

Only after the vessel has been positioned and is being held alongside the FSRU by the tugs, can mooring lines be passed to FSRU. Positioning of LNG CARRIER by use of engine once hull is in contact with FSRU fenders is prohibited. If major re-positioning required – LNG CARRIER must be pulled away from fenders, aligned correctly and then pushed against the fenders by use of TUGs. All springs must be on bitts before adjusting the position of vessel forward and aft.

Only one mooring line should be attached to the messenger. Attempting to secure more than one mooring line on a single messenger is unsafe and will only extend the time taken to complete the mooring operation.

In the interest of safety and until all mooring lines have been passed to the designated mooring bitts, it is extremely important that the LNG CARRIER's crew do not heave on any mooring lines until the FSRU and Terminal Mooring Crew are clear of the mooring bitts concerned.

When unmooring under normal circumstances mooring lines will be released by FSRU and recovered by the LNG CARRIER starting with spring lines FWD and AFT released 1 by 1, then - outer mooring lines, forward and aft to be released 2 by 2 (to be confirmed by FSRU Master).

Mooring lines to be released must be slacked sufficiently before the mooring crew will release the bitts. Once the line has been released the LNG CARRIER's Master will confirm with the FSRU's Master that it is safe to recover the mooring line.

Mooring lines should never be heaved until it is confirmed that the line has been released and/or as

advised by the FSRU's Master.

Synthetic tail ropes must be renewed at intervals not exceeding 18 months unless inspections indicate a shorter period is warranted.

LNG CARRIER's winch brakes must be tested at 12 monthly periods and the test results retained onboard for inspection by FSRU.

Failure to adequately tend the moorings is considered a breach of the Port Regulations with the consequent and appropriate action being taken by the Port management.

Appendix 5 – SAFETY LETTER – LNG CARRIER

SAFETY LETTER

To the Master o LNG CARRIER: _____

Dear Sir,

Responsibility for the safe conduct of operations while your ship is at this terminal rests jointly with you, as LNG CARRIER Master , and the FSRU Master as well. We wish, therefore, before operations start, to seek your full co-operation and understanding on the safety requirements set out in the Ship/FSRU Safety Check-List, which are based on safe practices that are widely accepted by the oil and tanker industries.

We expect you, and all under your command, to adhere strictly to these requirements throughout your ship's stay alongside this terminal and we, for our part, will ensure that our personnel do likewise, and co-operate fully with you in the mutual interest of safe and efficient operations.

Before the start of operations, and from time to time thereafter, for our mutual safety, a member of the FSRU staff, where appropriate together with a Responsible Officer, will make a routine inspection of your ship to ensure that elements addressed within the scope of the Ship/FSRU Safety Check-List are being managed in an acceptable manner. Where corrective action is needed, we will not agree to operations commencing or, should they have been started, we will require them to be stopped.

Similarly, you consider that safety is being endangered by any action on the part of our staff or by any equipment under our control, you should demand immediate cessation of operations.

As we have signed this letter you recognize full knowledgement of The TRBA Port Information,. Safety cannot be compromised.

Please acknowledge receipt of this letter by countersigning and returning the attached copy.

FSRU Representative

Signed: _____

FSRU Representative on duty is: _____

Position:: _____

Contact Details: _____

LNG CARRIER Master

_____ Signed :

_____ SS/MV

: _____

Date/Time:

Appendix 6 - INFORMATION TO BE EXCHANGED BEFORE TRANSFER

(a) Ship name:
(b) Voyage Number:
(c) Berthing date:
(d) Contractual data:

- Nº of existing pumps on board:
- Volumetric capacity 98%:
- Pressure ensured at offload: (When the operation is offload)
- Capacity of ballasting /unballasting simultaneous with load / offload (e) Information about the trip
- Kind of chartering (VCP, TCP, COA, etc.)
- Kind of trip (coasting trade / Outbound)
- Ports or places of origin and destination

(f) Communication media between ship and terminal
(g) Information about the cargo

- Quantity:
- Temperature:
- Tank pressure.

(h) Ballast:

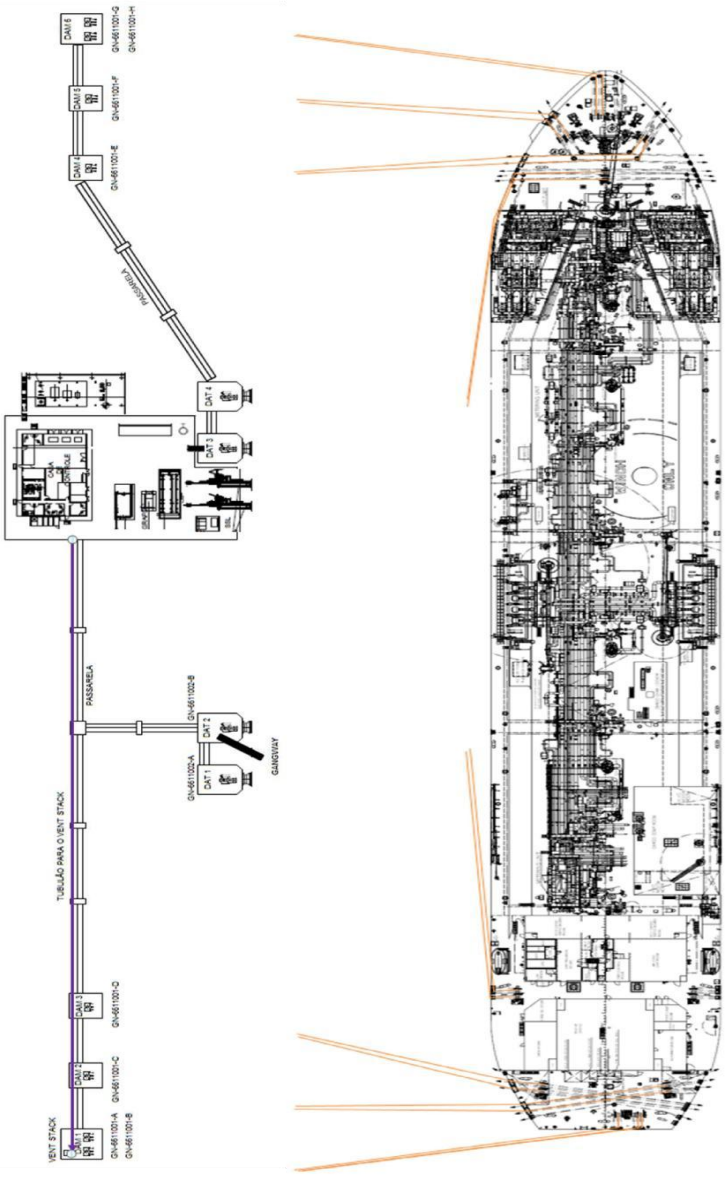
- (Segregated Ballast) Quantity:

(i) Information about the operation

- For offloads:
  - Will the ship make special operation? (Inertization, etc.)
  - Time foreseen for the special operation
  - Time needed to stop the pumps
- Conditions Carrier / FSRU / Terminal for the operation of product load/offload Carrier – Pressure, Flow Rate, Temperature (Max. and Min.)
  - FSRU/Terminal – Pressure, Flow Rate, Temperature (Max. and Min.)
- Sequence of operations
- Quantity to be loaded/offloaded
- Origin / Destination Tanks
- Lines from board / shore
- Loading arms
- Prevision for operation beginning and finishing

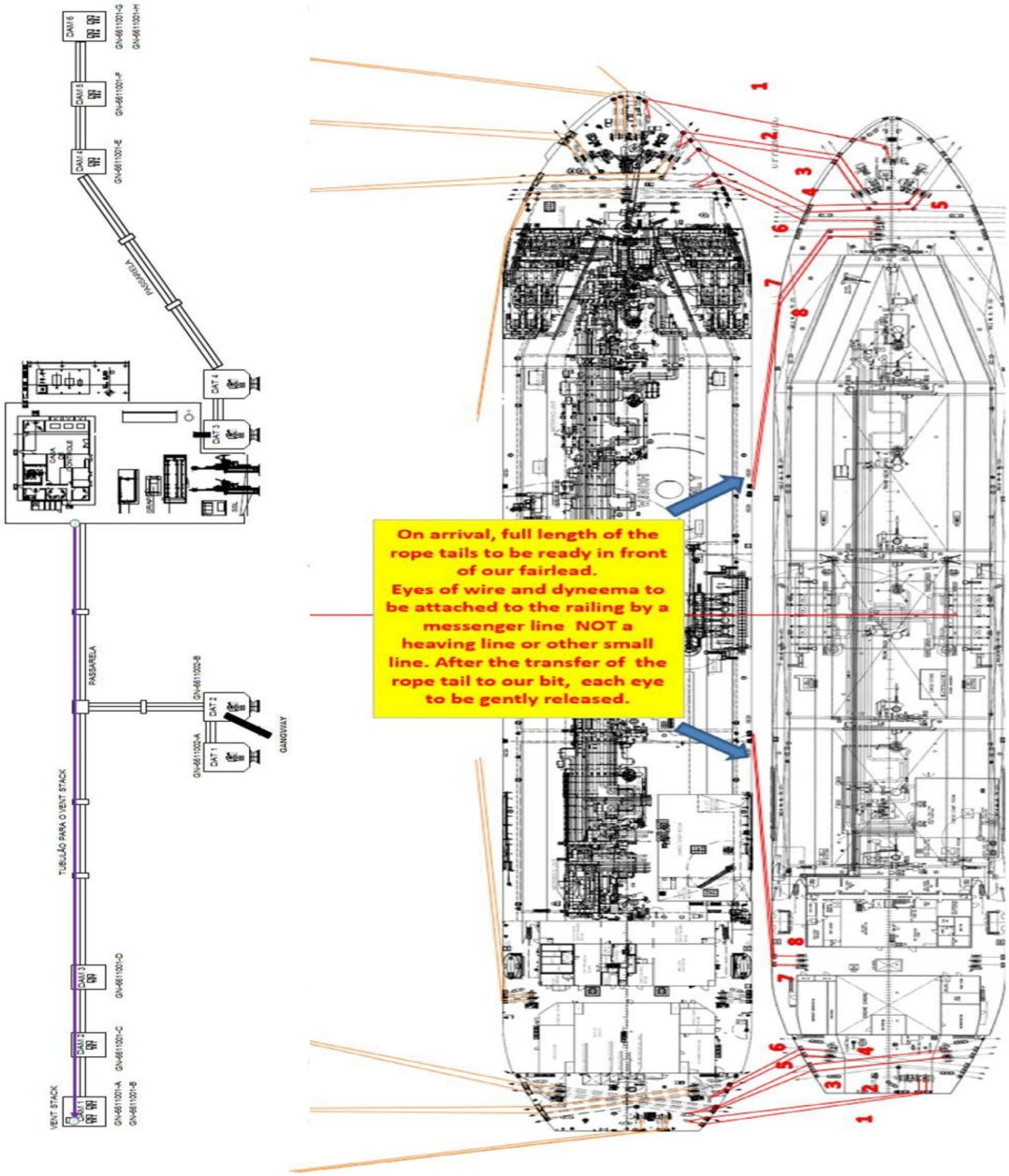
(j) Complementary information about operation and safety.

Appendix 7 - MOORING POINTS AND DOLPHINS LOCATION



FSRU EXPERIENCE and Location of the TRBA Dolphins

Appendix 8 – TYPICAL MOORING FOR SBS LAY OUT

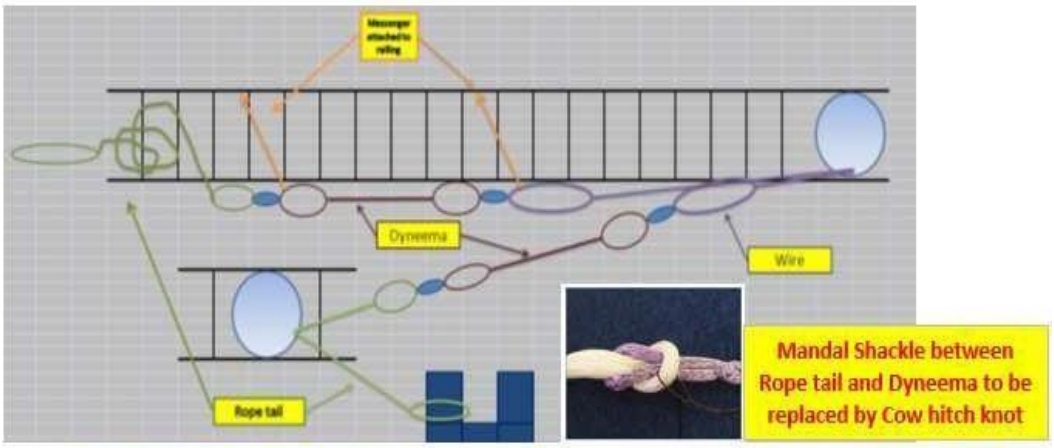


MOORING SEQUENCE

Aft springs 7 - 8 from Excel to Experience	messenger		7 first
Fwd springs 7 - 8 from Excel to Experience	messenger		7 first
Aft Stern line 1 from Excel to Shore Fwd Headline 1 from Excel to Shore	mooring boat mooring boat		
Aft Breast 2 from Excel to Experience Fwd breast 6 from Excel to Experience	mooring boat mooring boat		
Aft breasts 5 - 6 from Excel to Experience	mooring boat		6 first
Fwd breasts 4 - 5 from Excel to Experience	mooring boat		5 first
Aft breasts 3 - 4 from Excel to Experience	mooring boat		4 first
Fwd Breast 2 - 3 from Excel to Experience	mooring boat		3 first

UNMOORING SEQUENCE

Aft springs 7 - 8 From Experience to Excel	2 by 2
Fwd springs 7 - 8 From Experience to Excel	2 by 2
Aft stern line 1 from Shore to Excel Fwd headline 1 from Shore to Excel	
Aft breast 2 From Experience to Excel Fwd breast 6 From Experience to Excel	
Aft breasts 3 - 4 From Experience to Excel	2 by 2
Fwd breasts 2 - 3 From Experience to Excel	2 by 2
Aft breasts 5 - 6 From Experience to Excel	2 by 2
Fwd breasts 4 - 5 From Experience to Excel	2 by 2



On arrival, full length of the rope tails to be ready in front of our fairlead.

Eyes of wire and dyneema to be attached to the railing by a messenger line NOT a heaving line or other small line. After the transfer of the rope tail to our bit, each eye to be gently released

Appendix 9 – PNEUMATIC FENDERS LAYOUT