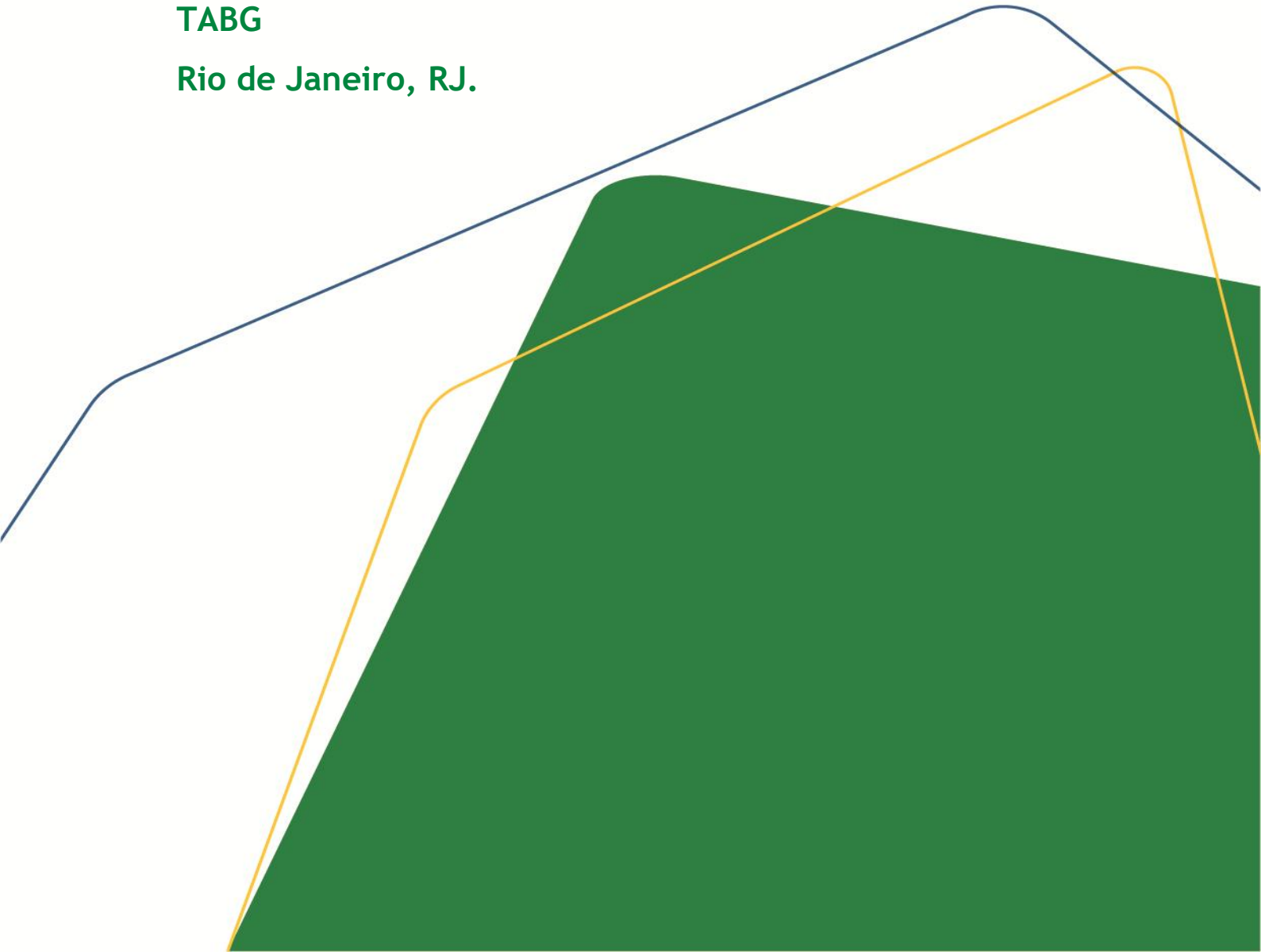
PORT INFORMATION

Terminal Information Booklet (TIB)

Guanabara Bay Waterway Terminal/
TABG

Rio de Janeiro, RJ.



GUANABARA BAY TERMINAL

Contacts

Organization	Time	Phone	Email	VHF/ UHF Calling Channel	VHF / UHF Working Channel
Port Authority	24 hours	(21) 2197 – 2554 (21) 2233 - 8412	www.cprj.com.br	16	All
Pilotage	24 hours	(21) 3553 0525	atalaiario@ praticagem-rj.org.br	16	12
Tugs	24 hours	Agencies	X	16	13
Main Pier	24 hours	(21) 3211 - 2869	X	16	10 – 14 - 17
Secondary Pier	24 hours	(21) 3211 – 2862	super.opidag@transpetro.com.br	16	10 – 14 – 17
Barge Pier	24 hours	(21) 3211 – 2876	super.opidag@transpetro.com.br	16	10 – 14 - 17
Ilha d'água Control Room	24 hours	(21) 3211 – 2858	super.opidag@transpetro.com.br	16	10 – 14 - 17
Ilha Redonda Control Room	24 hours	(21) 3211 2554 (21) 3211 2555	tabg.operations@trasnpetro.com.br	16	10 – 14 – 17
Ilha Comprida Control Room	24 hours	(21) 3211 2554 (21) 3211 2555	tabg.operations@trasnpetro.com.br	16	10 – 14 - 17
LNG Pier	24 hours	(21) 3211 – 2811 (21) 3211 - 2816	tabg.operations@trasnpetro.com.br	16	10 – 14 - 17

INTRODUÇÃO

This Port Information was prepared by Petrobras Transportes S.A. (TRANSPETRO) that operates the TABG Waterway Terminal in the port of BAÍA DE GUANABARA.

It presents essential information for vessels seeking to operate at the Terminal, and is distributed to interested parties of the Port, National and Local Authorities and various branches of the company.

The Port Information has Portuguese and English versions.

The information contained in this publication is intended to supplement, never replace or alter any type of legislation, instructions, guidelines or official publications, national or international. Therefore, it should not be taken into account what contradicts any item of the aforementioned documents.

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

TRANSPETRO will analyze any suggestions, recommendations or corrections to the matters addressed herein, in order to improve the information. If mistaken information is found that needs to be updated, please contact:

Guanabara Bay Waterway Terminal – TABG

Praia Congonhas do Campo, s/n - Bancários – Ilha do Governador CEP.: 21.910-410 – Rio de Janeiro – RJ – Brazil

Phone: Ilha D'água (I.D.).: 55 (21) 3211 2857

Phone: Ilha D'água (I.D.). 55 (21) 3211 2557

Phone: Ilha Redonda (I.R.) 55 (21) 3211 2554

Petrobras Transportes S/A – Transpetro

Av. Presidente Vargas, nº 328, Centro, CEP 20091-060, Rio de Janeiro – RJ Assessoria de Comunicação

The latest version of this Port Information and the other Transpetro terminals can be obtained from the following address:

https://transpetro.com.br

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REVISIONS

Revision	Changes	Date	Preparation	Approval
10th Edition	01 / 2025	11/19/2025	- Nautical Advisor: CMT Paulo Cezar Souza Di Renna - Nautical Officer: Kelly Renata da Silva Matos - Nautical Officer: Jacqueline Ferreira Vieira - Ives Marcelo Xavier	Nautical Advisor: CMT Paulo Cezar Souza Di Renna

1. Emergency Procedures

1.1 GENERAL

EMERGENCY CONTACTS

Organization	Time	Phone (55 21)	VHF/ UHF Calling Channel	VHF / UHF Working Channel
Port Authority	24 hours	2516-2341	16	To be agreed
Main Pier (PP)	24 hours	3211-2869	UHF 5A	UHF 5A
Secondary Pier (PS)	24 hours	3211-2862	UHF 4A	UHF 4A
Ilha d'água (P4)	24 hours	3211-2857	UHF 1A	UHF 1A
Ilha Redonda	24 hours	3211-2574	UHF 3A	UHF 3A
Ilha Comprida	24 hours	3211-2509	UHF 1B	UHF 1B
LNG Pier (PG)	24 hours	3211-2811	UHF 11a	UHF 11a
GIAONT	24 hours	3211-2886	16	To be agreed
Coordination / GIAONT	08:00 to 16:00	3211-2886	-	-
Federal Police (DEPOM)	24 hours	2240-1060	16	-
Military Police	24 hours	190	-	-
Fire Brigade	24 hours	193	-	-
Salvamar	24 hours	2104-6056	-	-
Civil Defense	24 hours	199	-	-
INEA	10:00 to 16:30	2332-4604	-	-
IBAMA	24 hours	0800-618080	-	-

Table 1

ENVIRONMENTALLY SENSITIVE AREAS

Appendix K shows the environmental sensitivity map of the Port of Rio de Janeiro.

GENERAL DESCRIPTION OF THE EMERGENCY RESPONSE ORGANIZATION

The responsibilities for dealing with possible emergencies involving vessels arriving at the Terminal are:

Maritime Transport

Type of Incident	Responsible Organization	Other Organizations Involved			
Channel Collision	Port Authority	Civil Defense	Transpetro	-	-
Vessel Stranding	Port Authority	Civil Defense	Transpetro	-	-
Vessel Sinking	Port Authority	Civil Defense	Transpetro	-	-
Fire on Vessel	Vessel	Transpetro	Fire Department	Civil Defense	Port Authority
Fire at Berth	Transpetro	Fire Department	Civil Defense	Port Authority	-
Pollution	Transpetro or Vessel	Port Authority	INEA	IBAMA	-

Table 2

CONTINGENCY PLANS

The Emergency Plan is TABG's plan for emergency response in all its facilities. It is available in all operational areas, in boards located at the entrances of the operating rooms, maintenance and administrative buildings.

The person responsible for updating it is the local QHSE (quality, health, environment and safety activity).

BERTHED VESSELS SHALL KEEP:

An anti-pollution kit – comprising sawdust, rags, shovels, buckets, squeegees, transfer pumps, etc. – must be kept ready for use in case of oil spillage on deck. Supplementary precautions will be taken in order to avoid pollution of seawater by oil.

TABG has an Emergency Response Center (CRE), equipped with modern equipment and various facilities, for use in accidental pollution.

Periodically intensive and simulated training is carried out, which enables Terminal employees to act according to the emergency plan. Located at a strategic point, it allows quick action in the fight against emergencies.

In its warehouse, containment barriers, oil collectors and other equipment and materials necessary for the works are stored. Work craft, support vessels, tank vessels and recovery vessels remain berthed at the dry cargo wharf in a permanent state of readiness at the Ilha D'Água Terminal.

Two platforms are installed at PP and PS, each with 200 m of containment booms, located at strategic points for immediate deployment in case of marine pollution during vessel operations.

Two vessels, with 150 m of containment barriers each, are in the vicinity of the berthed vessels for immediate response. Two other smaller and faster vessels are also located nearby for surveys and assistance in launching barriers.

In case of emergency (serious illness or accident), the vessel's master may request assistance from the Terminal via VHF or by telephone. The expenses arising from the services will be borne by the vessel.

PUBLIC RESOURCES TO COMBAT THE EMERGENCY

In the Port of Rio de Janeiro, **Transpetro**, through TABG and other operational units activated by the emergency plan, has resources that can be used to mitigate marine pollution events.

For other emergencies, public organizations offer the resources for which they are intended. There are other companies that also have resources to fight emergencies, and these should be contacted via a local agent.

LOCAL EMERGENCY SERVICES

The Fire Department, Rio de Janeiro Civil Defense, police forces (civil, military and federal) and hospitals have the resources for which they are intended and are activated according to the table: emergency contacts.

MUTUAL AID PLAN

The institutions listed below participate in the PEBG (Guanabara Bay Emergency Plan) and their resources are available as previously agreed in said plan.

OFFICIAL BODIES

- State Environmental Institute (INEA)
- State Civil Defense
- Municipal Civil Defense
- Port Authority of the State of Rio de Janeiro
- Municipal Urban Cleaning Company (Comlurb)
- City Hall of Municipalities located on the edge of Guanabara Bay
- Navy Fuel Depot
- Directorate of Ports and Coasts (DPC)

- Civil Defense of the Municipalities of Duque de Caxias, Magé and São Gonçalo
- Municipal Urban Cleaning Company of the municipalities of Caxias, Magé and São Gonçalo

PARTICIPATING COMPANIES

- Petrobras/Transpetro /TABG
- Exxonmobil Química Ltda.
- Shell
- Refinaria de Manguinhos Metalnave S.A.
- Hidroclean
- Vibra Energia S.A.
- Texaco
- Petroflex Indústria e Comércio S.A.
- Afton Chemical Indústria de Aditivos Ltda
- Navemestra Serviços Marítimos Ltda
- Portos Rio
- Ipiranga Control (Comércio e Transporte)

COMBATING OTHER MAJOR EMERGENCIES

The TABG Emergency Plan lists the actions and those responsible for each type of anticipated event that may occur within its facility, pipeline corridor or vessels and that may involve third parties. For events that are not provided for in this document, **Transpetro/Petrobras** will make available all national or international resources that are within its reach.

In the table below, you can find the telephone number of all **Transpetro's CDA's.**

Environmental Defense Centers

Location	24h phone
Amazon	(92) 3616.4128
Maranhão	(98) 3217.3300
Rio Grande do Norte	(84) 3235.5555
Bahia	(71) 3642.3344
Centro-Oeste	(62) 3206.8743
Bacia de Campos	(22) 2773. 6411
Rio de Janeiro	(21) 2677. 2002
São Paulo	(11) 6460.5812
Sul	(47) 3341.3590

Table 3

1.2 OIL STRIPPING AND STEAM RELEASE

The Local Emergency Response Plan aims to systematize emergency control actions, with the objective of maintaining operational continuity, safeguarding the

integrity of TABG facilities and third parties, preserving the environment and people's health.

TERMINAL COMBAT CAPABILITY

The Terminal through its Emergency Response Centre (ERC) is prepared to combat level 1 oil spills.

The CRE is equipped with containment booms, workboats, launches and oil recovery equipment, in addition to trained personnel available 24 hours a day at the Terminal facilities.

The list of available equipment is very large, so it follows only the list of the most important:

- 2 workboats
- 2 oil collecting boats
- 8 km of floating containment barriers
- 3 km of absorbent floating barriers

COMBAT CAPACITY OF THE ENVIRONMENTAL AGENCY

The environment agency of Rio de Janeiro does not have resources to combat oil spills at sea.

RESOURCES AVAILABLE FROM MUTUAL SUPPORT PLANS OF OTHER TERMINALS

In Guanabara Bay, the companies included in the Guanabara Bay Emergency Plan (PEBG) also provide resources to combat oil spills. The resources range from combat and logistics equipment to personnel to work on the work fronts.

LEVEL 2 COMBAT

In the event of a level 2 spill, **Transpetro** has an agreement with the Environmental Defense Centers (CDAs) located at the Duque de Caxias Refinery and Ilha Mocanguê, which have the equipment and personnel necessary to combat spills of this magnitude.

The CDAs are equipped with collection boats, barges, chemical dispersants, bioremediation agents and up to 20,000 linear meters of oil containment and absorption booms, which can be rapidly deployed to combat emergencies.

On average, each CDA is operated by 20 trained professionals who, if necessary, can command up to 1,000 people in an operation.

LEVEL 3 COMBAT

In the event of a level 3 spill, **Transpetro** has agreements with other Environmental Defense Centers located along the Brazilian coast, which have the equipment and personnel necessary to combat spills of this magnitude. These CDAs can provide a much larger amount of equipment and personnel.

1.3 FIRE AND EXPLOSION

Procedures to be adopted are found in the TABG Emergency Response Plan – pre.

1.4 BERTH COLLISION / DAMAGE

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

1.5 MEDICAL EMERGENCY

TABG has an agreement with a health care company that has an ambulance equipped for emergency care at the Terminal. Extensive medical and hospital resources, if requested, may be provided by local private hospitals.

1.6 SECURITY BREACH

Captains must instruct their crews on the need for **strict** compliance with the ISPs 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.

1.7 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.

1.8 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.

1.9 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".**

1.10 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 TABG Piers have telescopic gangways for easy access to berthed vessels.

Crew members who, upon disembarking, use the Terminal's facilities, in addition to complying with all ISPS Code procedures, must wear closed footwear, long trousers, sleeved shirt and circulate only within the demarcated area, where a security guard will be present to escort them to the launch boarding point.

The accommodation ladder on the side opposite to where the vessel is berthed must be kept on deck throughout the time the vessel remains alongside, for the safety of the Terminal and vessel. Only in case of emergency may such ladder be used.

2.3 DECLARATION OF SECURITY (ISPS CODE)

The Baía de Guanabara Waterway Terminals 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 Guanabara Bay Waterway Terminals normally operate 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 (21) 3211-2595.

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 berthing. 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 point 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

Area	Chart Number		
	Brazil (DHN)	US Hydrographic Office	British Admiralty
Anchorage and port approach	1,501 and 1,506	24,161	541
Port entrance and channels	1,511	24,162	541
Terminal and approach area	1,512 and 1,513	24,162	–
Boqueirão channel	1,535	–	–

Other Publications

Type/Subject	Editor or Source		
	Brazil (DHN)	US Hydrographic Office	British Admiralty
Maritime Authority Standards – Normam	**1, 2, 3, 4, 7, 8,**	**–**	**–**

	9, 12, 13, 15 and 17		
Rules and Procedures of the Port Authority – NPCP – RJ	**NPCP-RJ 2025**	**–**	**–**

Area	**Editor or Source**		
	Brazil (DHN)	**US Hydrographic Office**	**British Admiralty**
Navigation aids – Sailing directions	**East coast**	**–**	**–**
Lighthouse list – Brazil	**East coast**	**List of lights and radio signals**	**Admiralty list of lights and radio signals**
Tide table	**Brazilian ports**	**Tide tables**	**Admiralty tide tables**

3.2 VESSE/TERMINAL COMMUNICATION POLICY

See items below.

3.3 DOCUMENTS AND EXCHANGES OF INFORMATION

The items listed below must be provided by the Terminal or the Vessel, as indicated in the table. The Terminal makes use of a spreadsheet, provided to vessels through the agency containing information necessary for the operation.

Information	Prepared by:			Delivered to:			Remarks
	Terminal	Vessels	Both	Terminal	Vessels	Both	
Before Arrival							
Estimated arrival (ETA) and vessel information		X		Via agency			-
Essential Terminal Information	X				X		According to ISGOTT
Before Cargo or Bunker Transfer							
Details of cargo / slop / ballast on board		X		X			According to initial letter and annex F
Essential information to the operation (complete on site)	X				X		According to initial letter
Ship/Shore Safety Checklist			X			X	According to ISGOTT 6
During Cargo or Bunker Transfer							
Repeat Ship/Shore Safety Checklist			X			X	According to ISGOTT 6
Before COW operation							
Specific Checklist		**X**				**X**	COW Manual Checklist
During COW operation							
Specific Checklist			**X**			**X**	COW Manual Checklist
After Cargo or Bunker Transfer, before departure							
Information required for unberthing the Vessel			X			X	Inform the quantities of fuel and water expected for the arrival and departure of the vessel.
After unberthing, at the exit of the Port							
Information relating to port departure data		X			X		Inform the Duty Coordinator, via email, of the pilot disembarkation time and port departure time.

3.4 OPERATING HOURS

Table 4 No restriction.

3.5 LOCAL TIME

Brasília Time in UTC-03:00

3.6 COMMUNICATION LANGUAGES

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

3.7 USEFUL PHONE NUMBERS

See item 10 Contacts

3.8 ENVIRONMENTAL MONITORING PROCEDURES

The Terminal has instantaneous information on wind and current intensity and direction. When vessels approach to berth, this information may be made available via VHF radio to the vessel by the Terminal operator.

4. Description of the Port and Anchorages

4.1 GENERAL DESCRIPTION

The approach to the Port of Rio de Janeiro offers well-defined landmarks, and the bar can be easily approached from any direction.

The Ilha Redonda, Comprida, and Rasa islands are unmistakable reference points, especially Ilha Rasa with its lighthouse at the following coordinates: latitude 23º 03'. 8 S and longitude 43º 08’. 7 W.

Its focal height is 101 m. It is a cylindrical masonry tower in the center of a 3 m high house, painted white, with the following characteristics: Lp Alt BBE 15 sec 51/45 M having Racon 315 Khz continuous with callsign I H.

Sugarloaf Mountain rises from a small cape to the west to an altitude of 395 m, differing from others due to its peak's inclination toward the east. Nearby, about 1.3 nautical miles to the west, is the Corcovado Peak at 740 m altitude, from which the Christ the Redeemer statue rises.

The Ponta de Santa Cruz Lighthouse, located at latitude 22º 56’. 2 S and longitude 043º 08’. 1 W, has ISO E 2s 26 m 8 M characteristics.

Use of the main channel, dredged to 17 m, has a width of 200 m and should only be used with maximum draft of 15.85 m, restricted to daylight hours due to lack of adequate luminous navigation marks.

The port may also be approached via the secondary channel at any time of day or night, with depth varying between 13 m and 14 m; its use must respect the maximum draft of 11.50 m.

These two channels meet at the bar, abeam of Ponta de Santa Cruz, and extend to the Ilha d'Água Terminal, located inside Guanabara Bay.

Access to TABG facilities is made by choosing one of the port access channels until crossing the bar, then proceeding in the general direction of N towards the central span of the Rio–Niterói Bridge.

4.2 LOCATION OF ANCHORAGES

Guanabara Bay is exceptionally sheltered from most winds in the region.

Several areas prohibit anchoring due to submerged pipelines or lines, and anchoring is prohibited near the TABG (Guanabara Bay Oil Terminal).

Under no circumstances may vessels drop anchor between the alignment of Ilha d'Água with Ilha Redonda and in the vicinity of inner berths PP-2 and PS-2, due to the existence of submarine cables and pipelines.

Recommended anchorages can be found on DHN Nautical Charts 1.501 and 1.513 and must be used according to the vessel's draft and port availability, as they are not exclusive to the Terminal.

For the Terminal, the main anchorages are described in the following table:

Name	Latitude and Longitude	Anchorage Radius	Minimum Depth	Notes
Anchorage for Port Health (Saúde dos Portos) inspection visit and other authorities	w = 22º 52’ 75” S l = 043° 08’ 54” W	0.22 miles	13.3 m	The release of the vessel by the sanitary and port authorities can be done after berthing
Waiting anchorage	w = 22º 48’ 48” S l = 043° 08’ 30” W	0.23 miles	13.7 m	Vessels restricted by draft should verify berth availability before maneuvering.

Table 5

4.3 APPROACH TO TERMINAL

The TABG access channel markings are described in the navigational aids section.

Notable landmarks, geographic features,
and hazards encountered when approaching the Terminal are covered in the general description above (item 4.1).

4.4 MANEUVERING AREAS

The maneuvering basin, near the:

- PP 1: It is approximately 0.3 nautical miles in the E–W direction, with the N–S limitation being the navigation channel itself; depth is limited to the NW by the 20 m isobath and maximum of 22.5 m.
- PP 2: It is more restricted, limited to 0.11 nautical miles in the W-E direction; the N-S limitation is that of the navigation channel itself. Depths vary between 13 m and 17 m. Turning vessels west of the Pier's central axis is not recommended.
- PS 1: It is approximately 0.18 nautical miles in the N-S direction; there is no restriction in the W-E direction for vessels with maximum draft of 12 m. The basin was dredged to 13 m in front of the Pier. The Pier allows berthing maneuvers on either side, preferably against the tide.
- PS 2: It is very limited with approximately 0.1 nautical mile in the N–S direction and 0.05 nautical mile in the E–W direction, with depths of up to 12 m, bounded to the north by the 5 m isobath. Maneuvers are only performed on the ebb tide and berthing must be starboard side.
- IR: It is approximately 326 meters in diameter in front of the Pier. The depth is around 10 meters.
- Ilha Comprida (ICOMP): It is approximately 322 m in diameter in front of the Pier. The depth is around 12 meters.
- PG1: There is no defined limitation, with the reference being the delimitation of anchorage area No. 10, which must be available for LNG vessel anchoring maneuvers. However, the limits of the end of the bay should be taken into account, approximately 0.35 nautical miles in the N-E direction.
- PG2: It is more restricted, limited to approximately 0.1 nautical mile in the NW direction and extending counter-clockwise to S. The shoal restriction to the NW and the isolated danger recommendations in item 5.3.8 must be observed. The maximum draft of 12 m is that of the navigation channel itself, with depths varying up to 13 m. Turning vessels west of the Pier's central axis is not recommended.
- PB: It is about 150 m in diameter elongating to the NE. The basin is bounded from N to W by the 4 m isobath. Care must be taken not to advance to the SE of the Pier end due to the shallow depth of the area with a 2 m shoal.

NAVIGATION AIDS

When approaching the Port of Rio de Janeiro, the navigator will find the following navigational aids from the main port access channel:

- Dredged channel buoy: Iso B 2s
- Santa Cruz Lighthouse: Iso E 2s 26 m 18 M
- Ilha Laje Lighthouse: Iso V 2s 17 m 11 M
- Laje Buoy: Lp (2) B 5s

- Ilha de Villegagnon Beacon: Lp B 6s 7m 5 M
- Ilha Fiscal Lighthouse: Lp E 6s 8 m 8 M
- Parcel das Feiticeiras Beacon: Lp (2) B 10s 9 m 7 M
- Ponta da Armação Lighthouse: Lp B 10s 21 m 19 M
- Rio–Niterói Bridge Central Span
- Pedra da Passagem Buoy: R 9 m 5 M

Those proceeding to the secondary Pier will also have the following:

- Lighthouse of Manuels from Inside: Lp V 3s 11m 5 M

Those navigating to Ilha Redonda and Ilha Comprida, in addition to those previously described, may also rely on the following aids:

- Xaréu Beacon: Lp (2) B 6s 11 m 7 M
- Pedra da Sardinha Beacon: Lp (2) B 10s 7 m 5 M
- Cocóis Beacon: Lp E 3s 6 m 5 M
- Ilha da Pita Beacon: Lp E 2s 15 m 6 M, which can be used with the threading of the dolphin lighthouse north of the Ilha Redonda Pier, which has the following characteristics: R E 13 m 5 M
- Ilha Redonda channel and turning basin buoys: n1 Fl G 3s, n2 Fl G 3s, n3 Fl G 3s, n4 Fl G 3s, n5 Fl G 3s R E 13 m 5 M
- Ilha Comprida channel and turning basin buoys: n1 Fl G 3s, n2 Fl R 3s, n3 Fl G 3s, n4 Fl R 3s, n5 Fl G 3s.

Those navigating to the LNG Pier must consider the previous information up to Xaréu Beacon, and may rely on the following aids to navigation:

- Channel and turning basin buoys:

a) Buoy BL-1 indicating port hand lateral mark at position Lat. 22°47.46’ S and Long 043°08.27’ W BL1 Lp V 3S

b) Buoy BL-2 indicating east cardinal mark at position Lat. 22°47.00' S and Long 043°08.05' W for the purpose of indicating the 10m isobath limit with rocks to the east of Ilha de Viraponga. BL2 GrLp 3 B 5S

c) Two yellow BL-1 buoys indicating
special marks to delimit the maneuvering basin. The positions of these buoys are dependent on the new bathymetry, complying with the recommendations cited in item 6, and shall delimit the north and east portions of the area. Other features: Lp A 5S

d) Two yellow quick flashing lights, one to the north and one to the south of the Terminal, on the outer dolphins.

Additional information is available on DHN Charts 12.000 and 1.513.

PORT LIMITS AND ACCEPTANCE (NOR)

The official port limit is the entrance bar which lies abeam of Ponta de Santa Cruz, at position latitude 22° 56' 12" S and longitude 043° 08' 06" W, where a beacon of the same name exists. The time of passage through this point is considered as the Official Time of Arrival.

Local time is 3 hours less than the Greenwich Meridian.

If the vessel is instructed to wait for out-of-bar orders, the notification must be issued at anchorage time.

For the purpose of calculating vessel laytime, the hour of acceptance of the Notice of Readiness shall be considered as the time of the last line.

If the vessel does not pass the GIAONT safety inspection, the NOR acceptance time will be the time when the vessel remedies the non-conformities pointed out.

The Port of Rio de Janeiro does not have maritime traffic control, only an inspection of the movement of entry, exit and maneuvers of vessels. From the entrance bar or from within the operational point, the vessel must contact Marina Station PWZ-88 and inform arrival data, maneuvering forecast and length of stay, departure forecast, as applicable. A more detailed explanation can be seen in port control or VTS.

NAVIGATION HAZARDS

The channel from the anchorage to TABG facilities presents the following dangers and geographical features:

Laje da Barra:

- ✓ Located to port for those approaching the port, presents an isolated danger marked by a lighthouse and light buoy. The lighthouse has characteristic Iso R, 2s, 17 m and 11M. The Laje buoy, located on top of the isolated danger at position latitude 22° 55.9' S and longitude 043° 08.5' W, has characteristic Fl B (2) 5s and must always be left to port by those approaching the bar.

Ferry boat

- ✓ Immediately after abeam of Ilha de Villegaignon there is traffic of boats and hydrofoils crossing the channel linking Niterói to Ilha de Paquetá and Ilha do Governador and to downtown Rio de Janeiro. The navigator must exercise special caution when crossing this area.

Isolated hazard

- ✓ The access channel leading from the anchorage to the turning basin is not fully marked, however, the existing navigation marks are sufficient for safe navigation. The only dangers to those navigating towards the Terminal, besides Pedra da Laje at the bar entrance, are the ledges of Barroso, Obus de Dentro, Jaguarão and Barreira, located between the latitude positions: 22º 49' 48" S and 22º 50' 42" S and longitudes: 043º 09' 12'' W and 043º 09' 30'' W and the passage of the Rio–Niterói Bridge, which must be done with the assistance of tugboats.
- ✓ Vessels bound for PS-2 shall cross the way-point, formed by the intersection of the imaginary line between the South dolphin and the Manuéis de Dentro beacon, with two tugs with lines made fast, engine stopped and minimum headway, due to the possibility of accidents caused by vessels entering the turning basin at excessive speed.
- ✓ For vessels bound for Ilha Redonda and Ilha Comprida there is additional danger from Sardinha and Cocóis rocks, both marked with beacons: the first with characteristic Fl(2) B, 10 s, 7 m, 5M and the second, Fl G, 3s, 6 m, 5M.
- ✓ For vessels destined for the LNG Pier, they must pay attention to the following additional hazards:

- Laje do Cação;
- Pedra do Elefante;
- Ilha de Viraponga;
- Ilha de Nhanquetá;

- ✓ There is also a shoal with an 8.00 meter isobath and rocky bottom with approximate position at Latitude 22° 46' 30" S and Longitude 043° 08' 01" W which must be kept to starboard when berthing from the North. Special attention must be given to the vessel's turn to port, as well as its drift to NW, especially on flood tides.
- ✓ The Port of Rio de Janeiro does not present greater difficulties to navigation, provided that all the recommendations of the itineraries are observed.

- ✓ The maximum speed allowed for vessels that demand the access channel for berthing at any TABG Pier is 5 knots.

Restrictions

The recommended limits for maneuvers at the Terminal Pier are:

- ✓ Maximum wind: 20 knots
- ✓ Maximum current: 1.3 knots;
- ✓ Approach speed to the Pier: in all its berths, it must not exceed 10 cm/s in the direction perpendicular to the Pier;
- ✓ Maximum approach angle to the Pier: 5th (five degrees)

Maneuvers exceeding the limits described above expose the vessel and Terminal to damage and may only be carried out under conditions of extreme necessity and with Terminal authorization or in urgent/emergency situations, at the discretion of the vessel's master.

Special attention should be given to the observations contained in DHN nautical charts 1.501, 1.512 and 1.513 in the topics titled: flammables and submarine pipelines.

4.5 ENVIRONMENTAL FACTORS

The region where TABG is located has high relative air humidity, ranging from 50% to 60% in the afternoon period, remaining around 81% for most of the year.

Atmospheric pressure varies around 1,015 mbar in fair weather and local temperature oscillation throughout the year ranges between 13°C to 25°C in the months of June and July, and between 30°C to 42°C in the months of December and January. Seawater temperatures generally vary seasonally and spatially.

In terms of the surface of the water mirror, the average temperature is 24.2 +/- 2.6 ºC with a range of variation that can reach from 17 to 31 ºC.

PREVAILING WINDS

The local wind regime is fairly regular. In the evening and early morning, a breeze blows from NE to NW until around noon, when calm occurs. Then the winds from the S and SE quadrant begin to blow until the end of the afternoon, with moderate winds around 20 knots.

The most frequent winds in the Guanabara Bay region are NE (21%), S (17%) and N (14%). The S wind when associated with the cold fronts can reach 20 knots. An average of 13 frontal systems pass through Guanabara Bay in winter with an average interval of 6 days, an average of 46 cold fronts/ year.

Winds during cold front passage are greater than 20 knots in S SW direction. The average passing time is 12 to 24 h.

On average, wind speed throughout the year is 10 knots, and in the warm months from December to March, winds with gusts above 30 knots may occur, normally from the SW and NW quadrants.

The strongest winds are common between
June and September and are associated with frontal systems and cold fronts.

For the Main Pier (PP), Secondary Pier (PS), Ilha Redonda Pier (IR), Ilha Comprida Pier and Barge Pier, the Terminal adopts a limit of 25 knots for suspension of operations, depending on wind direction and whether or not there is a vessel at the opposite berth, as applicable, and 30 knots or 15 m/s as the limit for disconnection of loading arms and removal of the vessel access gangway.

This assessment will be made by the Pier operator in conjunction with GIAONT and the vessel master.

For the LNG Pier (PG), the Terminal adopts a limit of 30 knots for suspension of LNG and CNG discharge, with an assessment to be conducted by the Pier operator and GIAONT of wind conditions for suspension, disconnection of loading arms and removal of the vessel access gangway.

***** Unberthing, if necessary and possible, shall be carried out safely and with mutual agreement between Terminal and Vessel.

WAVES AND SWELL

The Terminal, being in a sheltered area within Guanabara Bay, does not experience significant wave or swell variations. The waves in the Terminal are influenced by the winds. Normally its height is less than 0.5 m, however in cold front they can reach heights of 1 meter.

PRECIPITATION

The average annual rainfall is 1075.8 mm, with a monthly average of 105 mm and the period of highest concentration of rainfall runs from November to March. There is historically no incidence of hail or snow in the region.

LIGHTNING STORMS

Thunderstorms with lightning are most frequent in spring and summer seasons, in the afternoon and early evening periods, accompanied by heavy rain and/or thunderstorms.

The elements that contribute to its incidence are the cold fronts and the high temperatures during the day in the months of November to March.

VISIBILITY

Visibility is generally good, but clearings can occur in the early hours of autumn and winter mornings. In the summer period, a dry fog sometimes appears, affecting visibility, but it quickly decreases with the heat of the sun.

TIDAL CURRENTS AND OTHER CURRENTS

The current field in Guanabara Bay is mainly governed by tidal regime, bottom geometry and its contours and, subordinately, by wind regime.

Tidal currents are very efficient in renewing the bay's waters (around 10% of its volume), and vary from 1.6 m/s at its entrance (region of greatest flow constriction) to 0.20 m/s in the innermost areas.

Flood currents are faster than ebb currents and spring tides are 3 to 4 times greater than neap tides.

The currents are irregular but normally follow the direction of the tide.

In flood tides, the current has the approximate direction of S to N in PP, PS, IR, ICOMP and LNG Pier. The current variation in this direction is from 0.1 knot to 1.3 knot.

In ebb tides, the current takes the direction approximately opposite to that of the flood tide. The variation of the current in this direction is from 0.1 knot to 1.5 knot.

The strong northeast, south and southwest winds influence the direction of the current, which obeys its direction. There are no notable tidal currents in the region.

TIDE LEVEL VARIATIONS

The approximate average normal range of the tide at the Terminal is 1.10 m (4 ft), at the time of the spring tide there are greater variations up to 1.60 m (5.2 ft).

The maximum drafts for berthing in the TABG were calculated due to the worst tidal condition.

See also the draft limits in the item in Table 6.

MEASUREMENTS

The Terminal has instantaneous information on wind and current intensity and direction. When vessels approach to berth, this information may be made available via VHF radio to the vessel by the Terminal operator.

5. Terminal Description

TABG consists of three non-contiguous piers: Main Pier, Secondary Pier and LNG Pier, each with two berths, designated PP-1, PP-2, PS-1 and PS-2, PG-1, PG-2 respectively, two Piers each with

one berth at Ilha Redonda, designated IR,
and another at Ilha Comprida, designated ICOMP, and a quay at Ilha d'Água designated Barge Pier with 5 operating positions, numbered 1 to 5.

The Terminal operates tankers, in general, transporting products such as liquefied petroleum gases, liquefied natural gas (LNG), petroleum and its derivatives and ethanol.

The access channel to TAIC and TAIR has a width of 279.4 meters, length of 700 meters and limiting draft for traffic of up to 10.6 meters.

The TAIC Turning Basin has a diameter of 322 meters with minimum depth of 12 meters, and the TAIR Basin has 326 meters with minimum depth of 10 meters, both located in front of the respective Piers.

TAIC has a Pier (dolphins) with length of 230 meters, minimum depth of 11.1 meters, maximum operating draft limited to 10.6 meters and alignment 034° (Starboard) / 214° (Port).

The TAIR Pier (dolphins) has a length of 200 meters, minimum depth of 9.5 meters, maximum operating draft limited to 8.7 meters and alignment 033° (Starboard) / 213° (Port).

The Management, Administration, Operational Control Center, Support and Maintenance, storage tanks and Emergency Response and Environmental Protection Center, with their respective materials and equipment, are located at Ilha d'Água and Ilha Redonda.

All berths are interconnected through submarine and land-based oil pipelines and gas pipeline networks to Ilha d'Água, Campos Elíseos Shore Terminal, and Duque de Caxias Refinery (Reduc).

5.1 TERMINAL LOCATION

TABG is located in Guanabara Bay, in the State of Rio de Janeiro.

COORDINATES

The Terminal facilities are located at the following coordinates:

- Main Pier (PP): Latitude: 22º 49’ 10” S and longitude 043º 09’ 08’’ W.
- Secondary Pier (PS): Latitude: 22º 48’ 15” S and longitude 043º 09’ 03’’ W.
- Ilha Redonda (IR) Pier: Latitude: 22º 48’ 07” S and longitude 043º 07’ 13’’ W.
- Ilha d'Água Barge Pier (PB): Latitude: 22º 48’ 38” S and longitude 043º 09’ 42’’ W.
- LNG Pier (PG): Latitude: 22º 46’ 48” S and longitude: 043º 07’ 59” W.
- Ilha Comprida (ICOMP): Latitude: 22º 48’ 35” S and longitude: 043º 07’ 40” W.

5.2 TERMINAL LAYOUT

Figure 1

GEOGRAPHICAL LOCATION

Strategically located near the cities of Rio de Janeiro, Niterói, São Gonçalo and Duque de Caxias, the TABG Terminal is operated by **Petrobras Transporte S.A. – Transpetro.**

5.3 VESSEL ACCEPTANCE CONDITIONS

See item 7 COMMUNICATION BEFORE ARRIVAL

5.4 MANAGEMENT AND CONTROL

There is a room at the Piers where operators from that area prepare documentation, handle communications and monitor berthing, vessel positioning and local monitoring of all vessel operations at the Pier.

The Operations Control Center for the Main, Secondary and Barge Piers is located in the management building at Ilha d'Água. At this location, the operator is responsible for controlling all operations, carried out through the supervisory system.

The Operations Control Centers for the Ilha Redonda and Ilha Comprida Piers are located in the administrative buildings at Ilha Redonda and Ilha Comprida respectively.

At these locations, the operator is responsible for controlling all operations, in addition to preparing documentation, handling communications and monitoring berthing and vessel positioning, carried out through the supervisory system.

The LNG Pier Control House is located in the Pier's operational building, where the operator responsible for controlling all Pier operations is stationed, carried out through the supervisory system and where documentation is prepared, communications are handled and the berthing and positioning of the vessel are monitored.

The primary means of communication between vessel and Terminal after berthing is the UHF radio provided by the Terminal. The operating range varies due to the Pier: Main Pier band 5A, Secondary Pier band 4A, Ilha Redonda band 3A, Ilha Comprida band 1B and LNG Pier band 11A.

The secondary medium is VHF at marine frequency previously combined and recorded.

All maneuvers carried out at Terminal berths are filmed by the internal CCTV system, and radio conversations are recorded in the voice recording system.

5.5 MAIN RISKS

The main risks associated with the stay of vessels in the TABG berths are:

- When unprotected due to the absence of a vessel at the inner (west) berth of the Pier, the vessel berthed at the outer (east) berth is more vulnerable to strong currents running west-east, creating a risk of moving away from the fenders of the Main Pier (PP), Secondary Pier (PS) and LNG.
- The same danger may occur due to strong southwesterly winds under the same conditions, regardless of the presence of a vessel berthed at the inner (west) berth.

To minimize the risks described above, the crew must keep the mooring lines under tension throughout the operation of the vessel.

6. Description of Berths

6.1 PHYSICAL DETAILS OF THE BERTHS

The table below shows the characteristics of the berths of the Guanabara Bay Waterway Terminal – Port of Rio de Janeiro

Berth	Type	Length (m)	Draft (m)	Tide		Arm height (m)	LOA (max)	DWT (max)	Minimum length of parallel side (m)	Products handled
				Spring tide	Low water					
PP-1	Ilha	310	15.85	1.60	- 0.10	17.80	279.5	135,000	21.3	Crude oil, oil products, alcohol and MTBE
PP-2	Ilha	310	12,80*	1.60	- 0.10	17.80	259	135,000	21.8	
PS-1	Ilha	300	12.00	1.60	- 0.10	17.80	186.4	55,000	40.0	
PS-2	Ilha	300	8.50	1.60	- 0.10	17.80	175	35,000	48.0	
IR	T	200	8.70	1.60	- 0.10	19.0	216	38,000	46.0	LPG and

ICOMP	T	230	8,70** 10,60***	1.60	-0.10	20		180	50,000	44.00	chemical gases
PB	L	80 and 115	5.80	1.60	- 0.10	–		115	5,000	–	Bunker
						(max)	(min)				
PG-1	Ilha	365	12.00	1.60	- 0.10	25.95	14.25	315	142,900	50.0	LNG
PG-2	Ilha	365	12.00	1.60	- 0.10	23.90	15.68	300	142,900	80.0	LNG and CNG

Table 6

*** Draft 12.00m plus 0.8m tide.**
**** Port side berthing and flood tide.**
*****Starboard side berthing and unberthing on ebb tide and port side unberthing on ebb or flood tide.**
Remarks: Starboard side berthing on flood tide is not authorized;

6.2 BERTHING AND MOORING ARRANGEMENT

The table below presents the tugs, maximum speed and approach angle, mooring bitts/bollards and number of lines required for vessel mooring.

Berth	No. and BP of tugs				Maximum approximation		Mooring points		Mooring lines		
	Berthing		Unberthing								
	No.	BP	No.	BP	Speed (cm/sec)	Angle (°)	Bollards	Bitts	Headline	Breast line	Spring
PP-1	3/4	50	3/4	50	10	5	–	12	4-3 *	3	2
PP-2	3/4	50	3/4	50	10	5	–	12	3	3	2
PS-1	3/4	50	3/4	50	10	5	–	20	–	6–5**	2
PS-2	2/3	50	2/3	50	10	5	–	14	–	4	2
IR	3/3	45	3/3	45	10	5	–	14	3	2	2-1 ***
ICOMP	3/ 4****	45	3/4	45	10	5	–	22	3	2	2-1***
PB	0/2	10	0/1	10	10	5	12	–	2	1	2
PG-1	3#	40	3#	40	12	3	–	28	2-3 ##	4	2
PG-2	3#	40	3#	40	12	3	–	24	2-3 ##	4	2

Table 7

 # The number of tugs must total a minimum of 120t BP with at least 3 of the push/pull azimuth or tractor type. The additional use of a firefighting vessel is recommended during LNG vessel transit in Guanabara Bay.
For Q-FLEX type LNG vessels, 3 tugs are recommended (FORE and AFT), with a total of 18 lines.
*** For vessels greater than 60,000 DWT, 4 headlines (fore and aft) of synthetic fiber or 3 of steel are recommended.**
**** For vessels above 35,000 DWT, 6 breast lines (fore and aft) of synthetic fiber or 5 of steel are recommended;**
***** In special cases, when the vessel's length is greater than 200 m, 2 springs (fore and aft) are recommended.**
****** Berthing and unberthing of design vessel shall be carried out with the assistance of at least 3 azimuth tugs with static bollard pull of at least 45 TBP each, when the vessel is in light draft condition (up to 6.40 m). If laden (draft up to 10.60 m), at least 4 azimuth tugs with static bollard pull of at least 45 TBP each shall be employed. For maneuvers with offshore support vessels, when the propulsion system is fully operational, the use of tugs may be dispensed with at the Master's discretion, assisted by the Pilot.**

6.3 BERTH CHARACTERISTICS FOR LOADING, DISCHARGE AND BUNKERING

Main Pier Arms

Berth	Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)	Anti-surge
PP-1	1	FMC	Oil	16”	3,150	10	60	Yes
	2	FMC	Crude oil	16”	3,150	10	60	Yes
	3	FMC	Darks	12”	1,350	10	100	Yes
	4	FMC	Lights	10”	1,600	10	40	Yes
	5	FMC	Darks	12”	1,350	10	100	Yes
	6	FMC	Lights	10”	1,600	10	40	Yes
PP2	1	FMC	Crude oil	16”	3,150	10	60	Yes
	2	FMC	Crude oil	16”	3,150	10	60	Yes
	3	FMC	Darks	12”	1,350	10	100	Yes
	4	FMC	Lights	10”	1,600	10	40	Yes
	5	FMC	Darks	12”	1,350	10	100	Yes
	6	FMC	Lights	10”	1,600	10	40	Yes

Table 8

PP working envelope:
- **Swivel = depends on arrangement of connected arms.**
- **Reach = 10 meters**
- **Maximum height = 17.80 meters**

Secondary Pier Arms

Berth	Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)	Anti-surge
PS-1	1	FMC	Darks	12”	1,350	10	100	Yes
	2	FMC	Lights	10”	1,600	10	40	Yes
	3	FMC	Lights	10”	1,600	10	40	Yes
	4	FMC	Darks	12”	1,350	10	100	Yes
	5	FMC	Lights	10”	1,600	10	40	Yes
PS-2	1	FMC	Darks	12”	1,350	10	100	Yes
	2	FMC	Lights	10”	1,600	10	40	Yes
	3	FMC	Lights	10”	1,600	10	40	Yes
	4	FMC	Darks	12”	1,350	10	100	Yes
	5	FMC	Lights	10”	1,600	10	40	Yes

Table 9

PS working envelope:
- **Swivel = depends on arrangement of connected arms.**
- **Reach = 10 meters**
- **Maximum height = 17.80 meters**

Remarks: The vessel must maintain the initial positioning referenced to the arms throughout the operation, as this

determines the optimal radial envelope. In the event of movement of the vessel which places the arms outside the operating envelope, the Terminal will take measures in order to maintain operational safety.

Ilha Redonda arms

Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)
BC-401	Emco Wheaton	LPG	10”	1,330	4.5	-48
BC-402	Emco Wheaton	Propylene Butadiene	6”	500	18.2	+40

Table 10

Ilha Redonda working envelope:

- **Swivel = 1.50 m**
- **Maximum height = 13.92 m.**
- **Reach = 11.50 m.**

Ilha Comprida arms

Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)
BC-6413451	FMC	LPG	10”	450 (Pressurized) 2000 (Refrigerated)	16.32	-45°/+40
BC-6413452	FMC	LPG	12”	450 (Pressurized) 2586 (Refrigerated)	16.32	-45°/+40

Table 11

Ilha Comprida working envelope:

- **Swivel = 1.60 m**
- **Maximum height = 14.20 m.**
- **Reach = 11.50 m.**

Barge Pier Arms

Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)
1	E.W. Brasil	Diesel	04”	450	10	40
2	E.W. Brasil	M.F.	06”	450	10	80
3	E.W. Brasil	Diesel	04”	450	10	40
4	E.W. Brasil	M.F.	06”	450	10	80
5	E.W. Brasil	Diesel	04”	450	10	40

Table 12

LNG Pier Arms

Berth	Arm	Manufacturer	Product	Diameter	Flow (m3/h)	Pressure (kgf/cm2)	Temperature (ºC)
PG-1	BC-001	Emco Wheaton	LNG	16”	5,500	5.0	-162
	BC-002	Emco Wheaton	LNG	16”	10.000**	0.13	-140
	BC-003	Emco Wheaton	LNG	16”	5,500	5.0	-162
PG-2	BC-004	Emco Wheaton	LNG	16”	5,500	5.0	-162
	BC-005	Emco Wheaton	LNG	16”	10.000**	0.2	-140
	BC-006	Emco Wheaton	LNG	16”	5,500	5.0	-162
	BC-007	Emco Wheaton	CNG	12”	*	58 to 100	5 to 50
	BC-008	Emco Wheaton	CNG	12”	*	58 to 100	5 to 50

Table 13

*** 25 MMm3/d (20 C and 1atm) passing through the two arms in operation.**

**** LNG vapor phase return flow. LNG Pier Working Envelope**

- **PG-1 berth LNG arms:**
- **Swivel = 3.5 meters /Maximum height = 25.95 meters**
- **PG-2 berth LNG arms:**
- **Swivel = 3.5 meters /Maximum height = 23.90 meters**
- **PG-2 berth LNG arms:**
- **Swivel = 3.5 meters /Maximum height = 24.50 meters**

7. Communication Before Arrival

Vessels bound for TABG facilities must indicate their Estimated Time of Arrival (ETA) 72, 48 and 24 hours in advance, directly to the respective agent, by email or telephone or through PPR (Rio Rádio Official Coast Station).

The alteration or confirmation of the arrival of the vessel will be communicated at least 12 hours in advance. The ETA must always be informed, using UTC time.

The Terminal reserves the right to refuse berthing or operations of any vessel deemed unsuitable or that does not meet safety, mooring or any other conditions that may create risk to the Terminal, and this encompasses: personnel, equipment and the environment.

Onboard repairs and washing of cargo tanks should preferably be carried out on voyage or in the anchorage area. To perform these services with the vessel berthed, evaluation and prior authorization from the Terminal will be required.

If crude oil tank cleaning is planned, the Terminal must be informed along with the estimated completion time and the vessel must comply with all ISGOTT procedures relating to COW.

Any discharge of dirty ballast or oil residue
or even oil into the sea is strictly prohibited. The Terminal firmly requests all masters of vessels intending to operate at this Terminal to observe the rules for prevention of marine pollution, Marpol/73 and amendments.

Heavy fines are imposed on vessels, in addition to compensation for expenses caused by pollution and damage to the environment.

Vessels berthed, in accordance with the SOLAS 74/78 Convention and amendments, must have an Inert Gas System (IGS), must have cargo tanks fully pressurized with inert gas at O2 content below 8% before commencement of operations and maintain them at a maximum of this value throughout the stay.

In order to optimize LNG transfer operations, it is recommended that supply vessels arrive at the Terminal with vapor pressures in their cargo tanks not exceeding 80 mbar.

Supply policy and lubricant orders see 8.10 SUPPLY POLICY

7.1 TERMINAL INFORMATION FOR VESSEL

In order to optimize the vessel servicing process, including allocation of the GIAONT inspector and other arrangements, the vessel must contact the Terminal via VHF channel 16 as soon as it begins the maneuver towards berthing.

The Terminal's recommendation for maneuvers to PS2 is that they commence at least 30 minutes before the turn from flood to ebb tide.

7.1.1 BERTHING

In TABG, the draft of the berthed vessels is limited to the values contained in the table: **physical details of the berths (see item 6.1)**

In addition to what is specified in the table, there are limitations due to berthing and unberthing maneuver times owing to turning basin restrictions, as described below:

Berth	DWT (T)	Draft (m)	Restrictions on maneuvering			
			Berthing		Unberthing	
			Day	Night	Day	Night
PP-1	Up to 135,000	Up to 15.85	(1)	(1)	(1)	(2) (3)
PP-2	Up to 35,000	Up to 11.50	(1)	(1)	(1)	(1)
	From 35,000 to 90,000	Up to 12.80	(1)	(1)	(1)	(2)
	From 90,000 to 135,000	Up to 12.80	(4)	(9)	(1)	(2) (4)
PS-1	Up to 55,000	Up to 12.00	(1)	(1)	(1)	(2)
PS-2	Up to 10,500	Up to 8.50	(1)	(9)	(1)	(9)
	10,500 to 35,000	Up to 8.50	(4)	(9)	(4)	(9)
	Offshore Support	Up to 6.5	(16) (17)	(16)	(16) (17)	(16) (17)

			(18)	(17) (18)	(18)	(18)
IR	Up to 29,300	Up to 8.70	(7) (14) (13) (15)	(9)	(7) (11) (12)	(7) (10) (12)
ICOMP	Up to 29,300	Up to 8.70	(5) (7)	(9)	(6)(7)(8)	(9)
		Up to 10.60	(6) (7)	(9)	(6)(7)(8)	(9)
PG-2	142,900	Up to 12.00	(1)	(9)	(1)	(9)
PG-1	142,900	Up to 12.00	(1)	(9)	(1)	(9)

Table 14

(1) No restriction;

(2) Night unberthing for voyage subject to a maximum draft of 11.50 m, due to the limitation of the access channel to the port;

(3) Night unberthing for anchorage only for vessels with a maximum draft of up to 15 m, depending on vacancy at anchorage No. 8 South;

(4) Only on ebb tide and berthed starboard side to;

(5) Maneuver authorized for port side berthing and flood tide;

(6) Maneuver authorized for starboard side berthing and unberthing on ebb tide;

(7) Wind not exceeding 20 knots, current not exceeding 0.8 knots and visibility not less than 2MN;

(8) Maneuver authorized for port side unberthing on ebb or flood tide;

(9) Maneuver prohibited.

(10) Maneuvers authorized for starboard side unberthing during night hours only with wind not exceeding 10 knots and slack water;

(11) Unberthing to starboard;

(12) Unberthing to port;

(13) Berthing by port;

(14) Berthing by starboard;

(15) Against the tidal current.

(16) Maximum LOA: 93 m, extreme mouth: 19m, entrance and exit through the South of the Terminal and berthing and unberthing by starboard

(17) Vessels with double azimuth main propulsion with bow thruster or conventional with bow and stern thrusters;

(18) SW or NE winds up to 15 knots. Color in front of the Terminal: ebb of up to 1.0 knot and flood of up to 0.8 knot. Berthing and unberthing without tidal lift restriction. Unrestricted by daylight.

The maximum trim allowed to the vessel during operations, when berthed, is 3 m, respecting the maximum drafts allowed for each of the berths.

Other points that limit the maximum draft for berthing at the Terminal are in the access channel and are described in the nautical charts and other information.

MAXIMUM DIMENSIONS

As a general rule, there is no length limitation (except PS2, LNG Pier, Ilha Redonda, Ilha Comprida and Barge Pier) and beam for the Piers, provided the measurements commonly found on vessels and the maximum displacement permitted for TABG berths are respected. Exceptions must be communicated in advance, so that the necessary restrictions can be calculated, in particular for berthing maneuvers.

LOA

It is found in the table in item 6.1.

PROCEDURES BEFORE MOORING

The mooring service at the Terminal is arranged by the agent about 3 hours in advance, after requesting pilot for the vessel.

MOORING TASK

The mooring tasks will always be performed under the guidance of the pilot. The Terminal, however, verifies the directives defined in item 6.2 BERTHING AND MOORING ARRANGEMENT

MOORING LINES

Mooring lines deserve permanent attention in order to keep the vessel always berthed. All lines must be kept under appropriate tension during operations.

MOORING SYSTEM

The vessel must keep the winches under brake, and the use of automatic tension winches is not allowed.

All mooring lines must be of the same type, gauge and material (fiber or wire), and the use of mixed moorings is not allowed.

Mixed moorings are those in which lines performing the same function are of different type, size and materials.

There should be no overlap of two lines on the same hook.

The mooring lines need to be arranged as symmetrically as possible in relation to the middle of the vessel.

Breast lines must be oriented as perpendicular as possible to the vessel's longitudinal axis and led as far forward and aft as possible.

Springs must be oriented as parallel as possible to the vessel's longitudinal axis.

If fiber tails are used on wire ropes, it is recommended that the tails be of the same type, with diameter 25% greater than the minimum breaking load of the wire rope, of the same material and length.

The horizontal angle of fore and aft headlines in relation to the direction of a breast line perpendicular to the vessel's longitudinal axis must not exceed 45°.

BEFORE CARGO TRANSFER

Any Terminal representative, whether an
Operator, PFSO or security guard, or even a GIAONT inspector, may board the vessel at any time or remain on board throughout the stay in order to conduct a visual inspection of operations, the deck and around the vessel, verifying that the vessel continues to meet the conditions established in the Initial Letter and complies with legislation in force, such as the ISPS Code.

Electrical isolation between vessel and Terminal is achieved by means of insulating flanges installed on the loading arms, in order to ensure connection safety in accordance with ISGOTT recommendations.

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

8.2 INITIAL CLEARANCE

Operations will only commence after completion of the initial letter by shore and shipboard representatives and clearance of the safety inspection by GIAONT, whichever occurs later.

The Ship/Shore Safety Checklist (ISGOTT) is verified and completed by the GIAONT inspector during the vessel's initial clearance.

Following this safety inspection, if there are outstanding issues that cannot be resolved by the crew, the vessel will not be granted authorization by the Terminal to commence operations, and may or may not be requested to unberth, with the vessel being held responsible for all implications and costs arising from its non-compliance, and the notice of readiness issued being cancelled.

It is prohibited to carry out soot blowing or boiler adjustments with the vessel berthed, as sparks may escape through the funnel and endanger both the vessel and Terminal facilities. Failure to comply with these regulations will result in one or more of the following sanctions:

- Interruption of operations and immediate communication to the competent authorities;
- Fine from the competent authorities;
- Compulsory undocking of the vessel from the Pier;
- Communication of the infraction to the shipowners with the issuance of a Letter of Protest; and
- Liability of the vessel for contractual fines, loss of time and all other related expenses arising from this fact.

Strict observance must be given to the prohibition on berthing or presence of unapproved and unauthorized small craft alongside or in the vicinity of berthed vessels.

Only Terminal service vessels and authorized vessels may be in the vicinity or alongside, provided that they meet all safety conditions.

Violation of this rule must be reported to the competent authority and will imply immediate interruption of operations and compulsory unberthing of the Pier vessel.

Berthed vessels will not be able to move their propellers while remaining connected to the operating arms. Only the turnstile may be used, even so, after due notice to the Terminal operator. To do so, the propeller must be moved so slowly that absolute safety is obtained. Vessels shall be liable for any damages resulting from these proceedings. This procedure must also be observed during maneuvers, since the use of tugs between the vessel's side and the walkways may cause damage to the oil containment barriers and walkways, and consequent shutdown of all operations. In this case, costs for shutdown and repairs to walkways and oil containment barriers shall be borne by the shipowner/operator responsible for the damage caused.

ARRIVAL

The port authorities are called by the vessels' agents due to the arrival and the forecast for berthing. As a general rule, the visit is carried out after berthing.

When berthing, following the safety inspection carried out by the Nautical Inspector, based on the ISGOTT Operational Safety Checklist, if there are outstanding issues that are not resolved by the crew, the vessel will not be granted authorization by the Terminal to commence operations.

8.3 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.

8.4 BALLASTING AND DEBALLASTING POLICY

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

See 8.5 below

8.5 CARGO TRANSFER PROCEDURE

The Terminal controls the internal pressure, flow and temperature variables through the centralized control supervision system.

Quantities handled and operating flow rates must be recorded hourly by the vessel and reported to the Terminal when requested, to be compared against the limits established in Terminal procedures.

Any change in operating conditions must be previously communicated and documented between the parties. It is expressly forbidden to close valves during operation that cause back pressure in the system.

Vessels operating with LPG and chemical gases at the Ilha Redonda and Comprida Terminals may not use booster pumps in operations involving pumping in series with Terminal pumps.

Refrigerated vessels must have tank pressure compatible with Terminal storage pressure (50g/cm²), to avoid pressure increase in Terminal tanks resulting from product expansion.

The nets and ballast tanks must be segregated and isolated from the other on-board nets. The ballast to be discharged into the sea must be completely free of oil, oily residue or any other substance capable of causing pollution.

Transpetro's schedule, which interacts with **Petrobras** logistics, provides Terminal tanks to receive slop from vessels. When the vessel needs to discharge slops in Rio de Janeiro, it must inform, via agent, the quantity to be discharged and its composition so that an assessment of stocks at the Terminal can be made and, if there is space in shore tanks, subsequent authorization for discharge.

Tank cleaning is normally not permitted while the vessel is berthed.

However, COW operations may be authorized, depending on prior authorization from scheduling for the purpose of the vessel's port stay and clearance from the GIAONT inspector for operational safety purposes, following ISGOTT prerequisites.

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.

In extreme cases, all safety standards must be observed and met. Repairs that comprise the facilities of the Piers or imply some restriction of the vessel during the stay must be previously authorized by the Terminal.

Intermediate inspections, in accordance with Parts 8 and 9 of ISGOTT 6, will be carried out by GIAONT during vessel operations, preferably every 6 hours, subject to the availability of ongoing operations and priorities.

The interruption of the loading or unloading of the vessel must occur in any situation that may pose a danger, either to the vessel or to the Terminal.

Operations may be temporarily suspended during storms, thunderstorms and/or strong winds, at the vessel's master's discretion or at Terminal request. The wind

limits adopted by the Terminal for suspension and disconnection are described in 4.5 (Environmental Factors).

Operations shall be immediately suspended in the event of non-compliance with any of the universally accepted rules and standards concerning safety adopted in maritime oil transport, with costs arising therefrom being borne by the party causing the non-compliance, with due protest being issued.

The vessel's master has the right to
suspend operations if he has reasons to believe that shore activities do not offer safety, provided he gives advance notice to the Pier operators.

In the event of an emergency situation with the vessel berthed, the actions set out in the Pier Emergency Response Flowchart Appendix J shall be taken. The contacts for each type of emergency are described in the management's Emergency Plan and the main telephone numbers are listed in **emergency contacts**.

In operations at the LNG Pier, internal drains (Gas Burning), before disconnections of the arms, must be directed to the regasifier vessels

8.6 PROCEDURES FOR CONNECTING/DISCONNECTING HOSES

After the end of the operation, the drainage of the loading arms used must be started. Operators will arrange drainage for closed system at the Pier. The vessel's representative will take care of the drainage of the on-board section.

The final onboard measurements will be carried out by the vessel's personnel and accompanied by TABG representatives and other inspectors.

The material used must be properly grounded and the measuring accessories must be explosion-proof. The final release of the vessel will take place after the comparison of the quantities handled and the complement of the stay documentation.

8.7 ENVIRONMENTAL LIMITS

See item 4.5 Environmental Factors

8.8 CLEANING POLICY AND ENTRY INTO TANKS

No form of tank, deck, chimney or similar cleaning is allowed. In case of extreme need, the Terminal must be consulted for evaluation. The authorities will always be notified prior to the issuance of authorization by the Terminal.

8.9 INERT GAS

Vessels berthed, in accordance with the SOLAS 74/78 Convention and amendments, must have an Inert Gas System (IGS), must have cargo tanks fully pressurized with inert gas at O2 content below 8% before commencement of loading and maintain them at this value throughout the operation.

In the event of difficulties or problems with the vessel's inert gas system, operations will be suspended until the system complies with the minimum acceptable standard.

8.10 SUPPLY

The Terminal has the capacity to supply
vessels with any type of fuel, such as bunker C, MGO, MDO, MF, with different viscosities, at international prices, including during operations (except Ilha Redonda, Ilha Comprida and LNG Pier).

Supply requests must be sent up to 72 hours before the arrival of the vessel, through the agent to:

Petrobras Bunkering

Phone: +11 55 (21) 2166-7393

A.O.H.: (21) 97210-6272

Fax: (21) 2166-9221

Email: bunker@petrobras.com.br

Lubricants

Orders for marine lubricants must be sent 3 days before arrival for foreign vessels and 5 days for Brazilian-flagged vessels to:

BR-GVMAR – Marine Lubricants Sales Management Rua General Canabarro, 500 / 14º andar – Ala A – Maracanã 20271-900 – Rio de Janeiro – RJ

Phone: (21) 3876-4265 (domestic vessels) / (21) 3876-2515 (foreign vessels)

Fax: (21) 2569-4223

Email: marbrax@br-petrobras.com.br

(national vessels)

eduardov@br-petrobras.com.br

(foreign vessels)

With prior consultation with the Terminal, water supply may be arranged through the local agent by barges which will be subject to GIAONT inspection.

8.11 POLLUTION PREVENTION

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

8.12 UNBERTHING AND LEAVING THE PORT

It must be announced to the agent the end
of the vessel, so that the pilot's schedule occurs. Upon completion of final clearance, with no Terminal personnel on board and with the pilot on board, the vessel removes the gangway and then, as directed by the pilot, commences unberthing.

The pilot, according to wind and current conditions, proceeds to determine tug placement and removal of lines to be recovered on board. When the last mooring spy is uncapped, the vessel is removed, according to the criteria established by the pilot.

During the unberthing maneuver and exit from the port, the limits of the channel and the hazards reported in the item approaching the Terminal must be observed.

The pilot usually disembarks at the same embarkation point described in item 9.3 Pilotage, where a harbor pilotage boat will await him.

8.13 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

All vessels underway in Guanabara Bay must keep the international call sign indicator (prefix) hoisted, VHF channel 16 always on and communicate their movements in the port, providing the following data to station PWZ-88 via VHF:

Table 13

Arrival	Departure	Inside Guanabara Bay
Vessel name	Vessel name	Vessel name
Flag	Flag	Flag
Call sign (prefix)	Call sign (prefix)	Call sign (prefix)
Vessel type	Vessel type	Current position
Cargo	Cargo	Next position
Last port	Next port	Cargo on board
Berthing or anchoring location	ETA	–
Estimated time of departure	Speed	–

The port clearance will be obtained from port authorities before vessel departure, via the vessel's agent.

9.2 MARITIME AUTHORITY

The maritime authority to which the Terminal is subordinate is the Port Authority of Rio de Janeiro.

The Captain of the Port of Rio de Janeiro determines that visits by authorities may be conducted either upon the vessel's arrival or after berthing, depending on availability and at the discretion of the respective authorities.

When the visit is conducted at the anchorage, anchorage no. 1 must be used and the time limit may be up to 6 hours.

The vessel's agent is responsible for information regarding said vessel.

The official port limits are set out in **port limits and NOR acceptance.**

The Port Authority is the maritime authority within the limits of the Port of Rio de Janeiro, with responsibility for determining actions and penalizing those responsible for any incident occurring within port limits.

9.3 PILOTAGE

Pilotage is compulsory for all foreign vessels and Brazilian-flagged vessels carrying dangerous or flammable cargos maneuvering in the port. Brazilian-flagged offshore support vessels with dynamic positioning systems maneuvering at Terminal facilities do not require a pilot or maneuvering tugs.

Pilotage shall be conducted from the pilot boarding position indicated on navigation charts or from the waiting anchorage, 2 nautical miles north of Ilha Rasa.

The organizations that offer this service are described below.

The pilot may be requested by the vessel's agent **24 hours in advance**, at which time the ETA at the boarding position will be informed.

For vessels using the main channel, the pilot boards at position latitude 22° 59' 48" S and longitude 043° 08' 42" W, near Ponta do Leme.

If the vessel uses the auxiliary channel, the pilot boarding position is latitude 22° 56' 30" S and longitude 043° 08' 24" W.

Berthing will be included in the Terminal schedule (informed by the TABG duty supervisor) and, if not, the pilot must anchor the vessel and await instructions.

For unberthing, responsibility for scheduling the pilot for vessel departure always rests with the Master.

This pilot time may be scheduled by the Terminal, depending on prior agreement or at the request of the vessel's Master or representative, based on the estimated completion time of operations provided by the vessel, in relation to cargo clearance time.

The minimum time to request the pilot is 3h30 before unberthing.

After berthing, vessels must remain in mooring conditions considered satisfactory by the master, pilot and GIAONT Nautical Inspectors, according to the Terminal's minimum safety recommendations, as follows: Berthing and mooring arrangements and in item AIS system and appendices B, C, D, E, F and G.

The pilot uses his own launch in Rio de
Janeiro. Vessels for delivery of provisions, as well as launches for crew transport, are services arranged by the vessel's agent.

The pilotage organizations operating in the Port of Rio de Janeiro may be freely chosen by the user. These are:

PILOTAGE RIO DE JANEIRO

Av. Rio Branco, 1 – Room: 1308 – Centro – Rio de Janeiro - RJ - CEP: 20090-907

Phone: (21)2516-1416 / 3553-0525

Website: www.praticagem-rj.com.br

Email: atalaiario@praticagem-rj.org.br

NEW PILOTS LTDA

Av. Rio Branco, 1 – sala 811 – Centro – Rio de Janeiro – RJ – CEP: 20090-907

Phone: (21) 3514-7860

Website: www.newpilots.com.br

E-mail: secretaria@newpilotsrj.com.br

RJ PILOTS

Av. Rio Branco, 04 Salas, 305/306 – Centro – Rio de Janeiro – RJ – CEP: 20090-000

Phone: (21) 2233-4020 / Fax: (21) 22831352

Website: www.rjpilots.com.br

E-mail: financeiro@praticosdoriodejaneiro.com.br

SINDIPILOTS – SERVIÇOS DE PRATICAGEM LTDA

Av. Rio Branco, 45 – 25º andar – Centro – Rio de Janeiro- RJ - CEP: 20090-908

Tel / Fax: (21) 2516 2340 / 2233 3362 / 2263 8222

RIO JAN PRÁTICOS LTDA.

Avenida Rio Branco, 04 - Sala 1402 – Centro – Rio de Janeiro – RJ – CEP: 20090-003

Phone: (21) 3553-6626 / Fax: (21) 3553-6623

E-mail: faturamento@riojan.com.br

PRÁTICOS DO RIO LTDA.

Avenida Gen. Guedes Fontoura, 1000 - Cob 01 – Barra da Tijuca – Rio de Janeiro – RJ – CEP: 22621-245

Phone: (21) 2516-1336 / 2233-1562

E-mail: faturamento@riojan.com.br

PRATICAGEM TREINAMAR

Av. Atlântica, 822/801 - Copacabana – Rio de Janeiro - RJ- CEP: 22010-000

Phone: (21) 3281-1210 Fax: (21) 3281-1210

For all situations, pilotage service is requested by the vessel's agent. In emergencies, subject to availability, the pilot will be allocated to the vessel at the earliest possible time.

9.4 TUGS AND OTHER MARINE SERVICES

TUGS

Petrobras has a contract with a service provider that provides support in tug operations and the Terminal supervises maneuvers at its Piers.

TABG maintains an exclusive contract and only employees of the contracted company can perform mooring/unmooring services at TABG Piers.

Considering that the recommended number of tugs meets conditions for winds up to 20 knots, should additional tug services be required at the discretion of the master and pilot, these may be contracted in the market by the vessel's agents, with additional costs being the responsibility of the shipowner or operator.

Tugs will not be allowed to participate in maneuvers at the Terminal Piers, without being previously inspected and approved by GIAONT.

Agents should always consult the Terminal GIAONT on the list of approved tugs, prior to requisitioning for the maneuver.

Failure to comply with these recommendations subjects vessels and their owners/operators to payment of losses arising from operational delays as a consequence of removal of a non-approved tug from the maneuver.

Also included are all other costs arising therefrom, such as cancellation and rescheduling of pilotage, demurrage of this or other vessels, refinery shutdown and others in connection with the event.

The number of tugs for the maneuver is calculated according to the vessel's size, type and location of maneuver, estimated time of arrival (ETA informed by the vessel) and berthing schedule at the Terminal (informed by the duty supervisor).

In unberthing, tugs are requested considering the expected end of operation informed by the vessel.

The basic rules under normal environmental conditions regarding the number of tugboats to be used are described in berthing and mooring arrangements.

Communication between tugs and vessel during maneuvers is conducted via VHF radio, channel 13. Tugs must have at least one other set continuously tuned to channel 16.

After the maneuver, tugs remain monitoring channels 13 and 16 in order to respond to any call from vessels or Terminal requirements.

As an alternative in case of equipment failure on the vessel or tug during the maneuver, vessels will use the following whistle signals:

Call:

4 long blasts followed by 1 or 2 short – The number of short blasts defines whether 1 or 2 tugs are being called, respectively.

Before passing the tow line:

2 short blasts – Prepare to push ahead or take the line at the bow.

3 short blasts – Prepare to push astern or take the line at the stern.

After passing the tow line:

1 long blast – Pull to starboard.

2 short blasts – Pull to port.

3 short blasts – Stop pulling.

Maneuvering alongside:

1 short blast – Pull.

2 short blasts – Push.

Other whistle signals are also used for auxiliary craft:

Call:

2 long blasts followed by one short – To call the pilot boat.

1 long blast followed by one short – To call the launch.

Remarks: All orders received by the tug must be acknowledged with one short blast or responses confirming the order via VHF on the maneuvering channel.

Launches for personnel transport:

The Terminal does not have launches for crew transport. This service may be requested by the vessel's protecting agent, by hiring launches available in the Port of Rio de Janeiro market.

List of tugs available at the anchorage and/or Terminal

Operator	Name	Propulsion	Bollard-Pull	Year
SAAM Towage	Lancelot	2	70.29	2014
SAAM Towage	SAAM Holanda	2	70.80	2015
SAAM Towage	SAAM Chile	2	70.16	2015
SAAM Towage	Arthur	2	71.27	2014
SAAM Towage	SAAM Gavião	2	83.70	2023
SAAM Towage	Itabira	2	62.91	2010

Table 16

9.5 OTHER OIL TERMINALS

TABG has an exclusive contract with a tug company. For tugs from another company: Agent to verify tugs are approved by GIAONT

Other relevant maritime services at the port

Divers

Company	Phones (21)	Contact Person	Immediate Mobilization Capability
ENGEPRON	21 999548355	ARI	1 TEAM
ENG OCEAN	71 996179313	MARCELO	1 TEAM

MARINE SERVICE	21 995869613	DANIEL BARROS	1 TEAM
MERGMAR	21 991569340	RUBENS	1 TEAM
RCS SUBAQUATIC	21 997950406	SARDINHA	1 TEAM

Table 17

Maritime Transport

Company	Phones (21)	Contact Person	Immediate Mobilization Capability
NOAHS	9 8144-7821 9 7006-0645	Mr. Henrique Mr. Leandro	7- Fast Launches 2- Steel Launches 3- Conventional
Martin Leme	9 8181-2041 9 8181-2042	Mr. Luiz Paes Mr. Rodrigo Paes	1- Good Barge 1- Extra Barge / Tug 1- Paradão Barge / Tug

Table 18

SUPPORT LAUNCHES:

Support launches for supplying deck stores, provisions and waste removal are requested via the vessel's agent and must obtain prior clearance from GIAONT.

Uninspected vessels will not be authorized to berth at any point in the Terminal or alongside vessels operating at this Terminal.

OTHER PETROLEUM GAS TERMINALS

There is an LPG/chemical gas Pier in Guanabara Bay, called Braskem.

OTHER KEY USERS

The **Transpetro** Terminal is private and does not compete with port traffic.

10. Contacts

See item: 1.1 **GENERAL** where the list of
Emergency Response organizations is included.

- **TERMINAL**

Ilha d'Água

Location	Contact	Telephone (21)	VHF Channels	
			Calling	Working
Main Pier	Operator	3211-2869	16	10-14-17
Secondary Pier	Operator	3211-2862	16	10-14-17
Barge Pier	Operator	3211-2876	16	10-14-17
Ilha d'Água Control Room	Operator	3211-2858	16	10-14-17
Shift Supervisor	Supervisor	3211-2857	16	10-14-17
Safety (HSE)	Safety technician	3211-2825	–	Shore 16
Property Security	Safety Inspector	3211-2522	–	Terrestrial 06

Table 19

Ilha Redonda / Ilha Comprida / LNG Pier

Location	Contact	Telephone (21)	VHF Channels	
			Calling	Working
Pier	Operator	3211 2569	16	10-14-17
Ilha Redonda Control Room	Operator	3211 2554 3211 2555	16	10-14-17
Ilha Comprida Control Room	Operator	3211 2554 3211 2555	16	10-14-17
Shift Supervisor	Supervisor	3211 2574	–	Shore 03
Safety (HSE)	Safety Technician	3211 2571	–	Shore 16
Property Security	Safety Inspector	3211 2580	–	Terrestrial 06

LNG Pier	Operator	3211 2811 3211 2816	16	10-14-17

Table 20

➢ PORT SERVICES

Organization	Contact	Telephone (21)	Email	VHF Channels Calling	Working
Port Authority	Duty Officer	2197-2554 2233-8412	www.cprj.com.br	16	All
Pilotage	Agent	3553-0525	atalaiario@ praticagem-rj.org.br	16	12
Tugs	Agency	According to 10.3	–	16	13

Table 21

➢ SHIPPING AGENTS AND SELECTED SUPPLIERS

Company	Business	Telephone (21)	Email	VHF Channels	
				Calling	Working
Lachmann	Agent	3849-5700	control@lachmann.com. br	16	All
Pennant	Agent	2123-1500	agency@pennant.com. br	16	All
Triaina	Agent	2518-1201	triainario@triaina.com. br	16	All
ISS Marine	Agent	3622-5756	issrio@iss.shipping.com	–	–
Oceanus	Agent	2213-8761	tramp.rio@oceanus.com.br	–	–
Wilson Sons	Agent	2223-9950	operj@wilsonsons.com. br	16	13

Buarque	Agent	2221-2210	buarque@buarque.com. br	–	–
GAC	Agent	2233-8099	shipping.brazil@gac.com	16	All

➢ AUTORIDADES LOCAIS, AGÊNCIAS ESTADUAIS E NACIONAIS

Organization	Opening Hours	Identification Acronym	Telephone (21)	VHF/UHF Radio
Federal Police	24 h	DEPOM	2240-1060	VHF 16
Military Police	24 h	–	190	–
Fire Brigade	24 h	–	193	–
Salvamar	24 h	Salvamar	2104-6056	–
Civil Defense	24 h	–	199	–
INEA	10 am to 4:30 pm	–	2234-7910	–
Ibama	24 h	–	0800-618080	–

Table 22

11. DEFINITIONS

BP (Bollard Pull) – Longitudinal Static Traction of Vessel

CCTV – Closed Circuit TV

CMI\CE\CB – Petrobras Department that sells the fuel (bunker) stored in Transpetro Terminals

COW – Crude Oil Washing

Squat Effect – Increase in draft and trim variation of a vessel as a consequence of increased speed when navigating in restricted waters

ESD – Emergency Shut Down

FSRU – Floating Storage and Regasification Unit

GIAONT – Vessel and Terminal Operational Inspection and Monitoring Group

LNG – Liquefied Natural Gas

ICOMP – Ilha Comprida

ID – Ilha D'água

IMO – International Maritime Organization

ISGOTT – International Safety Guide for Oil Tankers and Terminals

IR – Ilha Redonda Pier

ISPS Code – International Ship and Port Facility Security Code

Spring tides – Condition in which the tide reaches the maximum amplitude at certain times of the year

NOR – Notice Of Readiness

PB – Ilha d'Água Barge Pier

PFSO – Port Facility Security Officer

PG - LNG Pier

PP – Main Pier

PS – Secondary Pier

QHSE – Quality, Health, Environment and Safety

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

TABG – Guanabara Bay Waterway Terminals

DWT – Deadweight Tonnage

UTC – Universal Time Center (Universal Standard Time)

VTS – Vessel Traffic Service

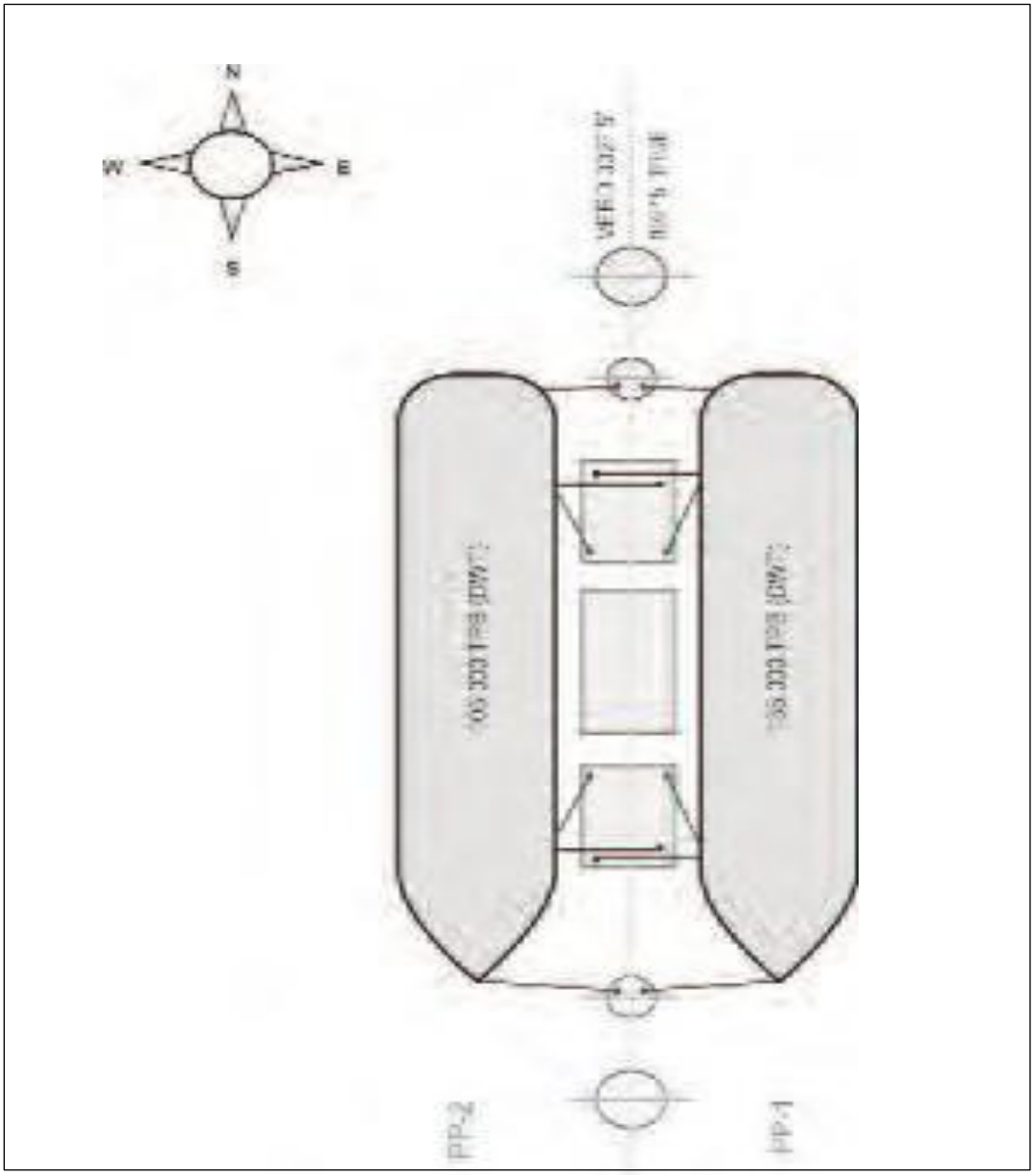
12. APPENDICES

APPENDIX A

A - Location of TABG Piers

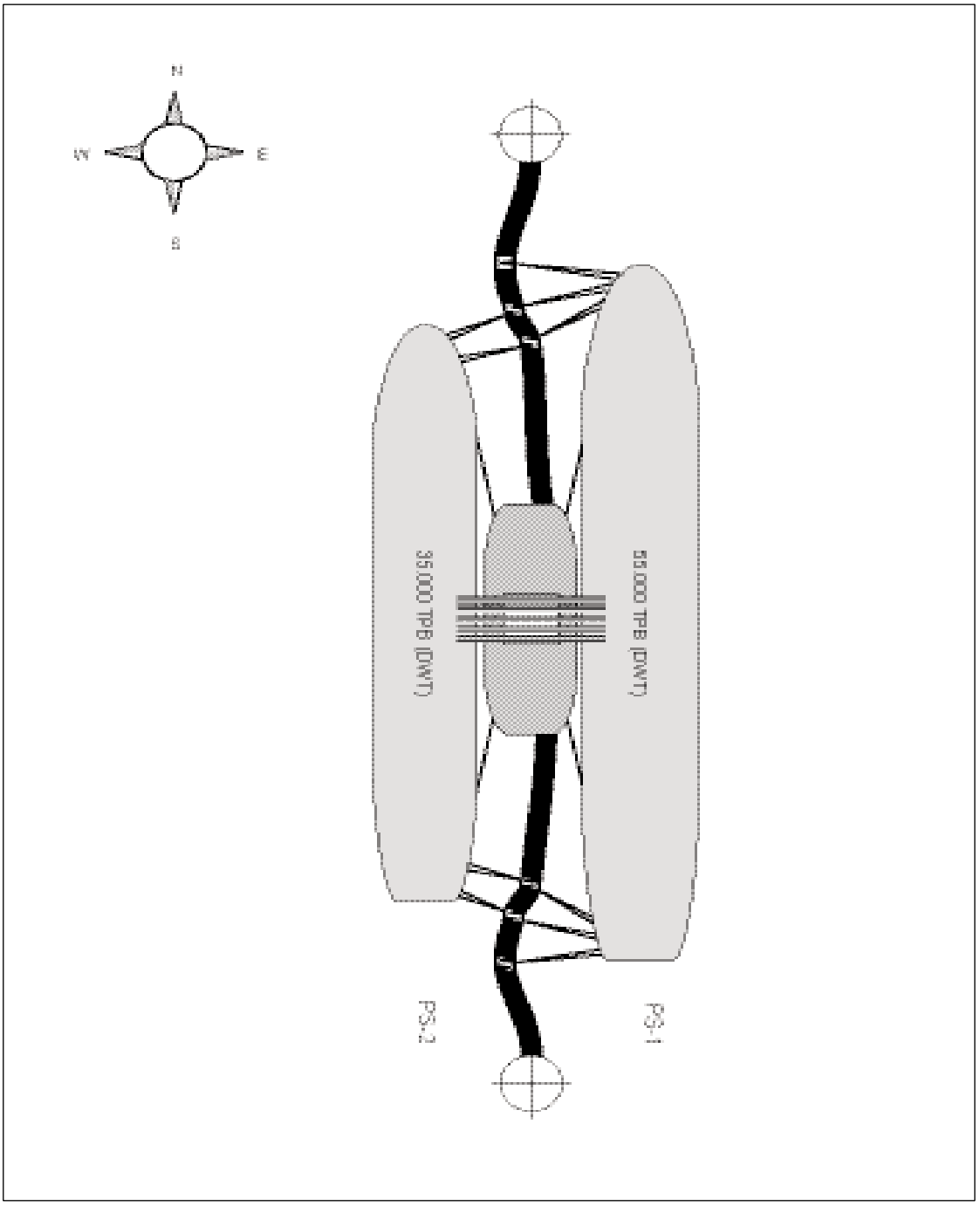
APPENDIX B

B – Main Pier Mooring Scheme



APPENDIX C

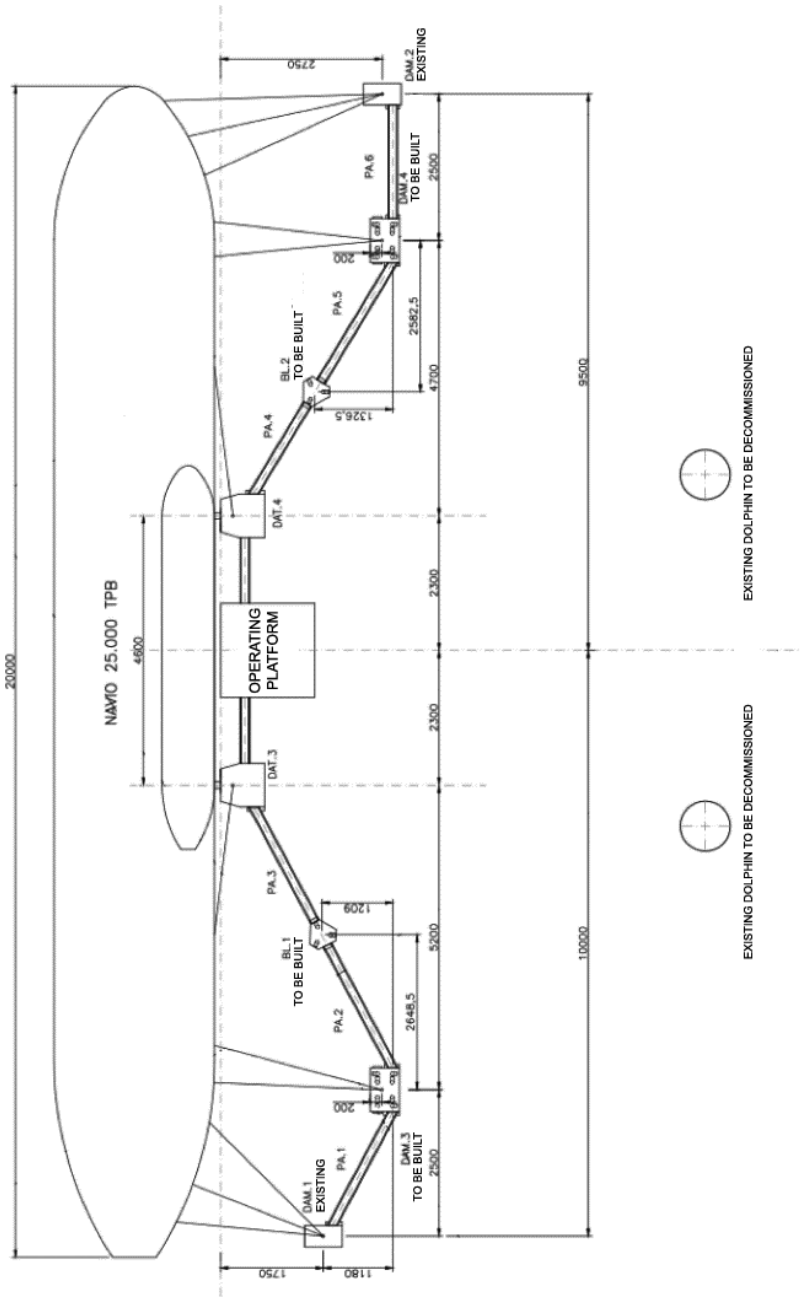
C– Secondary Pier



Mooring arrangement

APPENDIX D

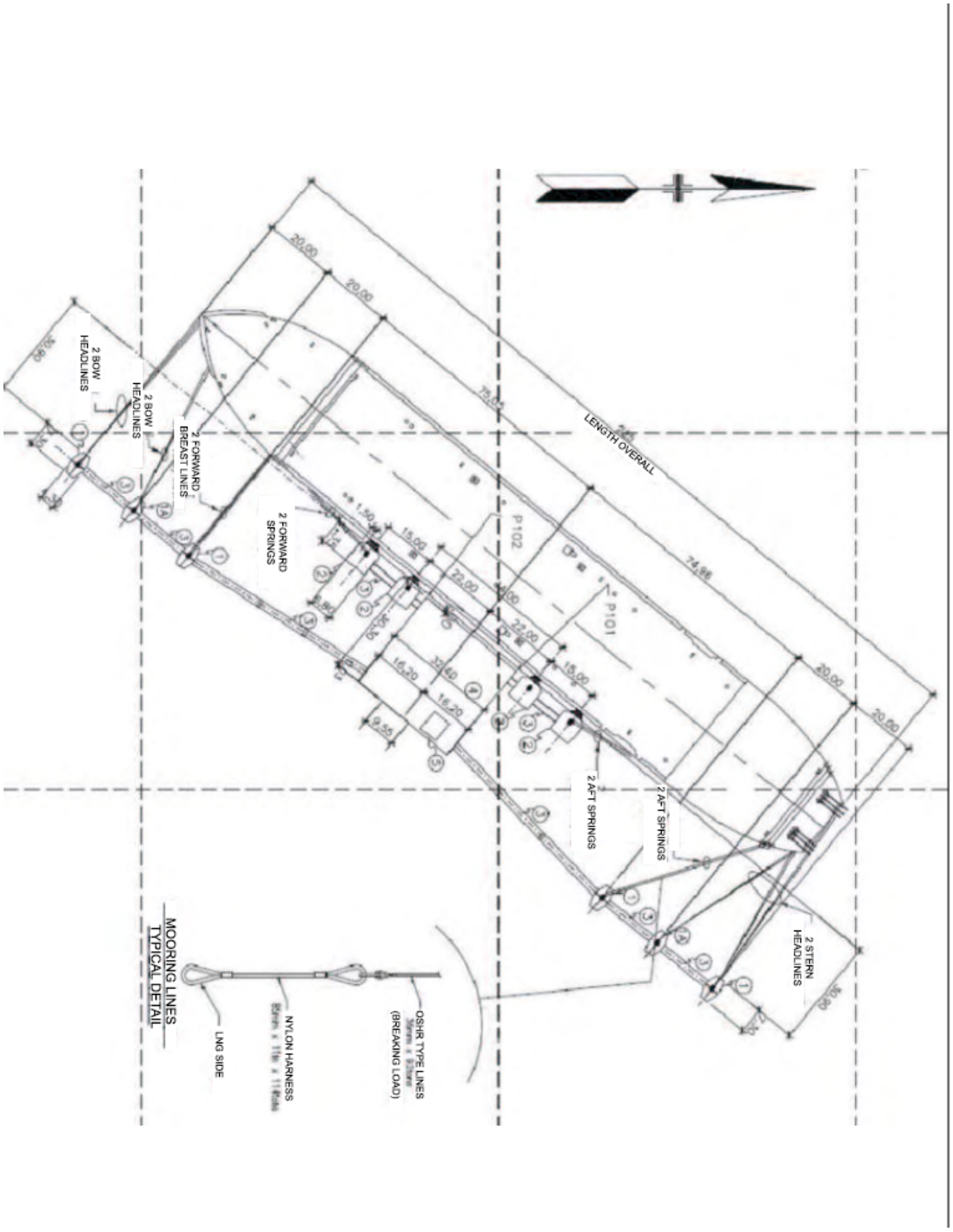
D – Ilha Redonda mooring arrangement*



***Ilha Redonda mooring arrangement has been modified due to new dolphin installation works.**

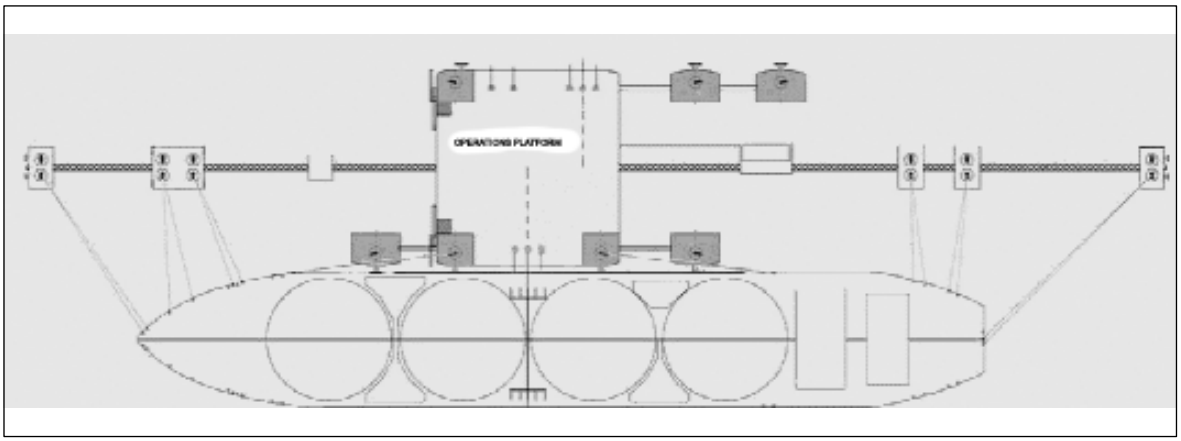
APPENDIX E

– Ilha Comprida mooring arrangement



APPENDIX F

F – Starboard mooring scheme in PG1 (EAST berth)

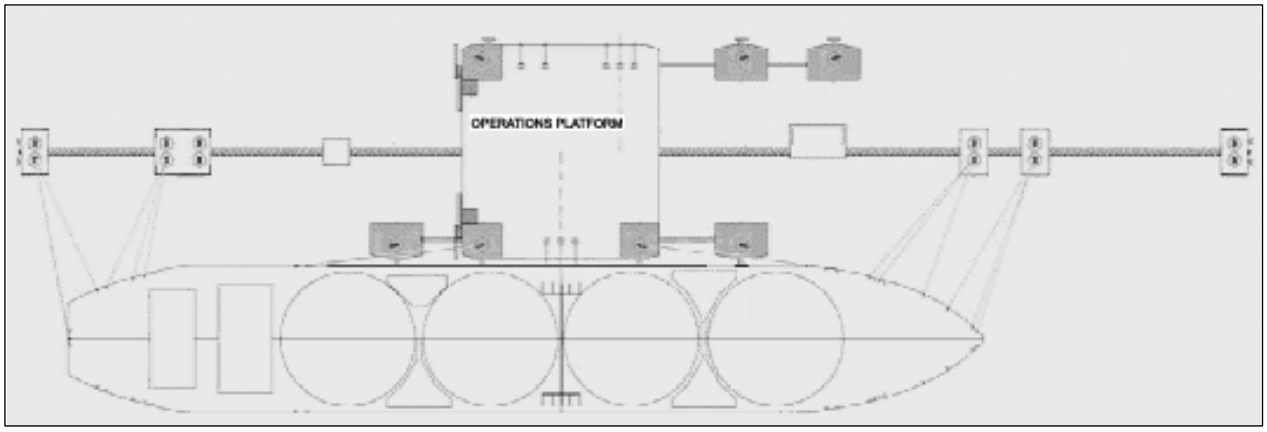


APPENDIX F

Loading arm connection diagram

APÊNDICE G

G – Starboard mooring scheme in PG2 (WEST berth)



For Q-FLEX type LNG vessels, 3 tugs are recommended (FORE and AFT), with a total of 18 lines.

APPENDIX H

H– Vessel information for Terminal

Port and Terminal of:			
Request for information about the vessel:			
Vessel name: Flag: Master's name: Owners:		Estimated Time of Arrival (ETA): Last port: Next port: Agents:	
Does the vessel have an inert gas system? Oxygen content:			
Total length (LOA): Length between perpendiculars: Beam:		Arrival draft: Maximum draft during transfer: Departure draft:	
Number of engines: Number of propellers:		Transverse propulsion: Bow (no. and power): Stern (no. and power):	
Tugs Minimum number required:		Minimum bollard pull:	
Number and size of manifold flanges: Cargo: Ballast: Bunker:		Distances: Bow to manifold: Ship's side to manifold: Manifold height to main deck:	
Loading schedule (fill in as applicable)			
Nomination Type and quantity: m3	Type and quantity: m3	Type and quantity: m3	
Discharge of ballast to sea Quantity: m3		Estimated time:	
Discharge of slops/ballast to shore Quantity: m3		Estimated time:	
Communication facilities between vessel and Terminal:			
Multi-pin connection type Distance from multi-pin connection to the center of the steam arm Fiber optic connection? Pneumatic back-up connection of ESD Distance from the pneumatic connection to the center of the steam arm			
Unloading schedule (fill in as applicable)			
Type and quantity: m3	Type and quantity: m3	Type and quantity: m3	
Ballast:	Volume: m3	Time:	
Requested supplies (bunkers)			
Type and quantity:	Type and quantity:		
Additional information (if any):			
Person in charge:	Role:		

Please fax or email to Terminal Supervisor (Fax: 24679994 /Email tabg operations@petrobras.com.br

APPENDIX I

I – Information to be exchanged before cargo transfer

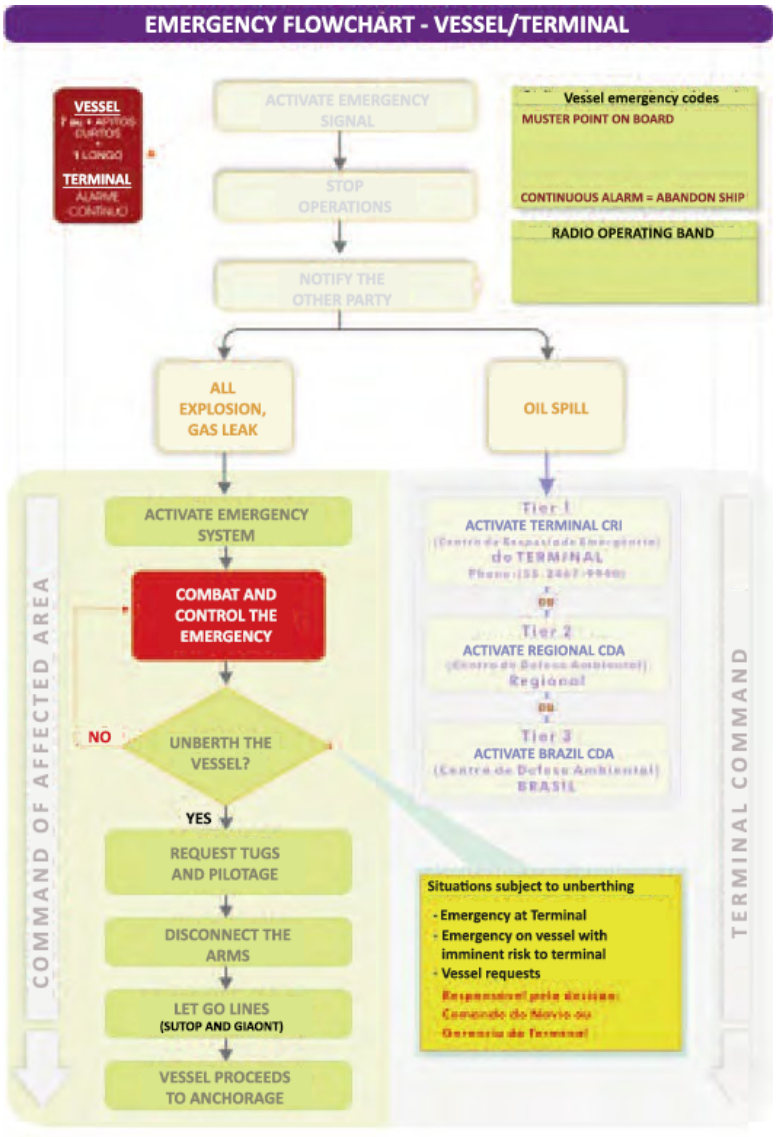
Information between Vessel and Terminal			
Vessel name:		Berth:	
Voyage number:		Berthing date:	
Contractual data			
No. of pumps on board:			
Volumetric capacity: 98%			m3
Pressure guaranteed at discharge (when discharging):			kgf/cm2
Ballasting/deballasting capacity simultaneous with loading/discharge:			
Voyage information			
Type of charter (VCP, TCP, COA etc.):			
Type of voyage (cabotage/international):			
Ports or places of origin and destination:			
Has vessel requested bunkering?			
Means of communication between vessel and Terminal:			
Information about the cargo			
Product:	Quantity:	Temperature:	API:
Slop			
Quantity:	Temperature:		API:
Fluidity:	Origin: Contaminants:		
Ballast			
Dirty ballast Quantity:	Temperature:	Segregated ballast Quantity:	
Operation information			
For discharges: Will vessel perform special operations (COW, inerting etc.)? Estimated time for special operation: Time required for pump shutdown:			
For loadings: Advance notice time for topping off: Flow rate for topping off period: Quantity of ballast to be discharged: Maximum permitted flow rate for deballasting: Are there restrictions on electrostatic properties? Are there restrictions regarding use of automatic closing valves?			

Vessel/Terminal conditions for loading/discharge operations by product	
Vessel Pressur e: Flow: Maximum temperature: Minimum temperature:	Terminal Pressu re: Flow: Maximum temperature: Minimum temperature:
Sequence of operations by product	

Quantity to be loaded/unloaded: Tanks of origin/destination: Shipboard/shore lines: Loading arms/hoses used: Forecast for start and end of operation:
Additional information on operation and safety

APPENDIX J

J – Emergency Flowchart



APPENDIX K

K – Environmental sensitivity maps to oil spills in Guanabara Bay

Coastal Sensitivities

1. Smooth rocky shores, high gradient, exposed; cliffs in sedimentary rocks, exposed; smooth artificial structures (artificial sea walls), exposed

Dissipative beaches of medium to fine sand, exposed; sandy strips adjacent to the beach, non-vegetated, subject to storm surge action (isolated or multiple beach ridges, elongated beach ridge complexes of the long beach type); scarps and steep slopes (Barreiras Group and Coastal Tablelands formations), exposed; exposed dune fields

Coarse sand beaches; intermediate fine to medium sand beaches, exposed; fine to medium sand beaches, sheltered

Gravel and sand mixed beaches, or shell and coral fragment beaches; abrasion terrace or platform with irregular surfaces or covered with vegetation; fringing sandstone reefs

Gravel beaches (pebbles and cobbles);
calcareous debris coast; talus deposits; exposed rockfill (rip-rap, training walls, breakwaters); exhumed platform or terrace covered by lateritic concretions (irregular and porous)

Exposed sandy tidal flat; low-tide terrace

Rocky escarpment/slope smooth, sheltered; rocky escarpment/slope non-smooth, sheltered; steep sand scarps and slopes, sheltered; rockfill (RIP-RAP and other non-smooth artificial structures) sheltered

Sheltered sandy/muddy tidal flats and other non-vegetated coastal wetlands; sheltered muddy low-tide terraces; sandstone reefs supporting coral colonies

Vegetated river deltas and bars; waterlogged terraces, wetlands, marshes, river and lagoon margins; brackish or saltwater marshes, with vegetation adapted to brackish or saline environments; salt flats; salt marshes; mangroves (fringing mangroves or estuarine mangroves)

Biological resources

- Birds
- Shorebirds
- Coastal seabirds
- Birds of prey
- Continental aquatic birds - flamingos, cormorants, spoonbills etc.
- Non-passerine terrestrial birds
- Passerine terrestrial birds
- Bivalves
- Swimming crabs and crabs
- Other invertebrates
- Other terrestrial mammals
- Shrimp
- Gastropods
- Dolphins
- Terrestrial mammals - rodents
- Fish
- Alligators
- Other crustaceans
- Other mollusks
- Whales
- Chelonians
- Multi-species group concentration area
- Protected species

Socioeconomic Resources

- Industrial facilities/shipyards
- Pier
- Boat launching ramp
- Boat ramp
- Dam, reservoir or weir
- Coastal access road
- Equipment storage/concentration area
- Port
- Fishing community
- Residential/vacation homes
- Commerce
- Nautical sports
- Military installations
- Boat anchorage
- Waste disposal site
- Marina
- Recreational beach
- Artisanal fishing
- Heliport
- Oil refinery
- Oil pipeline
- Historical site
- Sport fishing
- Oil terminal
- Hotel
- Multi-group socioeconomic resources
- Environmental protection area

LISTA DE SEGURANÇA OPERACIONAL NAVIO/TERMINAL

VERIFICAÇÕES ANTES DA CHEGADA

ISGOTT CHECKS PRE-ARRIVAL SHIP/SHORE SAFETY CHECKLIST

PARTE 1A. NAVIO: VERIFICAÇÕES ANTES DA CHEGADA PART 1A. TANKER: PRE-ARRIVAL CHECKS			
Item	**Verification** Check	**Condition** Status	**Notes** Remarks
1	Foram trocadas informações com o Terminal antes da chegada. Pre-arrival information is exchanged (6.5, 21.2).	□ **Sim, Yes**	
2	Há uma conexão internacional contra incêndio vessel/Terminal available. International shore fire connection is available (5.5, 19.4.3.1)	□ **Sim, Yes**	
3	Os mangotes de transferência são de construção adequada. Transfer hoses are of suitable construction (18.2).	□ **Sim, Yes**	
4	As informações do Terminal (Port Information) foram lidas e compreendidas. Terminal information booklet reviewed (15.2.2).	□ **Sim, Yes**	
5	Foram trocadas informações com o Terminal antes da atracação. Pre-berthing information is exchanged (21.3, 22.3).	□ **Sim, Yes**	
6	As PVs Valves, PV Breakers, Vent Post, Master Rises, Alarmes de Pressão e de Nível Alto dos tanques de carga, estão operacionais. Pressure/vacuum valves and/or high velocity vents are operational (11.1.8).	□ **Sim, Yes**	
7	Os analisadores de oxigênio, fixos e portáteis estão operacionais, disponíveis e nas quantidades exigidas. Fixed and portable oxygen analysers are operational (2.4).	□ **Sim, Yes**	

Data e hora Date and time		**Terminal** Terminal	
Porto e Berço Port and berth		**Product** Product to be transferred	
Navio Tanque Tanker			

PART 1B. NAVIO: VERIFICAÇÕES ANTES DA CHEGADA SE HOUVER UM SISTEMA DE GÁS INERTE PART 1B. TANKER: CHECKS PRE-ARRIVAL IF USING AN INERT GAS SYSTEM			
Item	**Verification** Check	**Condition** Status	**Notes** Remarks
8	Os registradores do analisador fixo do teor de oxigênio e de pressão do sistema de gás inerte estão funcionando. Inert gas system pressure and oxygen recorders are operational (11.1.5.2, 11.1.11)	□ **Sim, Yes**	
9	O sistema de gás inerte e equipamentos associados estão operacionais. Inert gas system and associated equipment are operational (11.1.5.2, 11.1.11)	□ **Sim, Yes**	
10	A atmosfera de todos os tanques de carga está com o teor de oxigênio menor do que 8 % por volume. Cargo tank atmospheres' oxygen content is less than 8% (11.1.3)	□ **Sim, Yes**	
11	Todos os tanques de carga estão com pressão atmosférica positiva. Cargo tank atmospheres are at positive pressure (11.1.3	□ **Sim, Yes**	

PART 2. TERMINAL: VERIFICAÇÕES ANTES DA CHEGADA PART 2. TERMINAL: PRE-ARRIVAL CHECKS			
Item	**Verification** Check	**Condition** Status	**Notes** Remarks
12	Foram trocadas informações antes da chegada? Pre-arrival information is exchanged (6.5,21.2)	□ **Sim, Yes**	
13	Há uma conexão internacional contra incêndio vessel/Terminal available. International shore fire connection is available (5.5, 19.4.3.1, 19.4.3.5)	□ **Sim, Yes**	
14	O equipamento de transferência é de construção adequada. Transfer equipment is of suitable construction (18.1, 18.2)	□ **Sim, Yes**	
15	O Manual de Informações (Port Information) do Terminal foi enviado ao navio. Terminal information booklet transmitted to tanker (15.2.2)	□ **Sim, Yes**	
16	Foram trocadas informações antes da atracação. Pre-berthing information is exchanged (21.3,22.3)	□ **Sim, Yes**	

LISTA DE SEGURANÇA OPERACIONAL NAVIO/TERMINAL –

VERIFICAÇÕES APÓS A ATRACAÇÃO

ISGOTT CHECKS AFTER BERTHING SHIP/SHORE SAFETY CHECKLIST

PART 3. NAVIO: VERIFICAÇÕES APÓS A ATRACAÇÃO PART 3. TANKER: CHECKS AFTER BERTHING			
Item	**Verification** Check	**Condition** Status	**Notes** Remarks
17	As defensas estão em boas condições e adequadamente posicionadas. Fendering is effective (22.4.1)	□ **Sim, Yes**	
18	A amarração do navio é eficaz. Berthing arrangement is effective (22.2,22.4.3)	□ **Sim, Yes**	
19	O acesso do Terminal para o navio e do navio para o Terminal é seguro. Access to and from the tanker is safe (16.4)	□ **Sim, Yes**	
20	Os embornais e as bandejas de contenção	□ **Sim, Yes**	

	estão efetivamente bujonados e as bandejas coletoras de bordo estão em posição e vazias. Scuppers and savealls are plugged (23.7.4,23.7.5)		
21	As válvulas de costado e de fundo estão bem fechadas e travadas. Cargo system sea connections and overboard discharges are secured (23.7.3)	□ **Sim, Yes**	
22	Os transceptores de frequência muito alta e ultra alta estão configurados para o modo de baixa potência. Very high frequency and ultra high frequency transceivers are set to low power mode (4.11.6,4.13.2.2)	□ **Sim, Yes**	
23	Todos os acessos à superestrutura, portas externas e vigias, nas acomodações, paióis e espaços de máquinas são controlados. External openings in superstructures are controlled (23.1)	□ **Sim, Yes**	
24	A ventilação da casa de bomba é eficaz. Pumproom ventilation is effective (10.12.2)	□ **Sim, Yes**	
25	As antenas dos rádios transmissores de alta e média frequência estão isoladas. Medium frequency/high frequency radio antennae are isolated (4.11.4, 4.13.2.1)	□ **Sim, Yes**	
26	Está sendo mantida pressão positiva no interior das acomodações. Accommodation spaces are at positive pressure (23.2	□ **Sim, Yes**	
27	Os planos de emergência contra incêndio do navio estão prontamente disponíveis. Fire control plans are readily available (9.11.2.5	□ **Sim, Yes**	

PARTE 4. TERMINAL: VERIFICAÇÕES APÓS A ATRACAÇÃO PART 4. TERMINAL: CHECKS AFTER BERTHING			
Item	**Verificação** Check	**Condição** Status	**Observações** Remarks
28	As defensas estão em boas condições e adequadamente posicionadas. Fendering is effective (22.4.1)	□ **Sim, Yes**	
29	O navio está amarrado de acordo com o plano de amarração do Terminal. Tanker is berthed according to the Terminal berthing plan (22.2, 22.4.3)	□ **Sim, Yes**	
30	O acesso do Terminal para o navio e do navio para o Terminal é seguro? Access to and from the Terminal is safe (16.4)	□ **Sim, Yes**	
31	Os arranjos e tanques de contenção de vazamentos são seguros. Spill containment and sumps are secure (18.4.2, 18.4.3, 23.7.4, 23.7.5	□ **Sim, Yes**	

LISTA DE SEGURANÇA OPERACIONAL NAVIO/TERMINAL –

INITIAL RELEASE MEETING

ISGOTT CHECKS PRE-TRANSFER SHIP/SHORE SAFETY CHECKLIST

PARTE 5A. NAVIO E TERMINAL: REUNIÃO DE LIBERAÇÃO INICIAL PART 5A. TANKER AND TERMINAL: PRE-TRANSFER CONFERENCE				
Item	**Verificação** Check	**Condição** **Vessel** Tanker Status	**Condição** **Terminal** Terminal Status	**Observações** Remarks
32	O navio está pronto para se movimentar por seus próprios meios enquanto estiver atracado no Terminal. Tanker is ready to move at agreed notice period (9.11, 21.7.1.1, 22.5.4)	□ **Sim, Yes**	□ **Sim, Yes**	

33	Foram estabelecidos meios de comunicação entre o navio e o Terminal. Effective tanker and Terminal communications are established (21.1.1, 21.1.2)	□ **Sim, Yes**	□ **Sim, Yes**	
34	Os equipamentos de transferência de carga estão em condições seguras (isolado, drenado e despressurizado). Transfer equipment is in safe condition (isolated, drained and de-pressurized) (18.4.1)	□ **Sim, Yes**	□ **Sim, Yes**	
35	Os serviços de vigilância e supervisão da operação a bordo e no Terminal são adequados. Operation supervision and watchkeeping is adequate (7.9, 23.11)	□ **Sim, Yes**	□ **Sim, Yes**	
36	Há pessoal suficiente para combate a emergências. There are sufficient personnel to deal with an emergency (9.11.2.2, 23.11	□ **Sim, Yes**	□ **Sim, Yes**	
37	As restrições para fumantes e as áreas para fumantes estão identificadas. Smoking restrictions and designated smoking areas are established (4.10, 23.10)	□ **Sim, Yes**	□ **Sim, Yes**	
38	Foram estabelecidas restrições quanto ao uso de luzes desprotegidas e estão sendo cumpridas. Naked light restrictions are established (4.10.1)	□ **Sim, Yes**	□ **Sim, Yes**	
39	Foram estabelecidos controles para uso de dispositivos elétricos e eletrônicos nas áreas perigosas. Control of electrical and electronic devices is agreed (4.11, 4.12)	□ **Sim, Yes**	□ **Sim, Yes**	
40	Foram estabelecidas rotas de fuga de emergência a bordo e no Terminal. Means of emergency escape from both tanker and Terminal are established (20.5)	□ **Sim, Yes**	□ **Sim, Yes**	

41	Os equipamentos de combate a incêndios estão prontos para serem utilizados. Firefighting equipment is ready for use (5, 19.4,23.8)	□ **Sim, Yes**	□ **Sim, Yes**	
42	O material de limpeza de derrames de óleo está pronto para ser usado. Oil spill clean-up material is available (20.4)	□ **Sim, Yes**	□ **Sim, Yes**	
43	Os manifoldes estão com conexões apropriadas e seguras. Manifolds are properly connected (23.6.1)	□ **Sim, Yes**	□ **Sim, Yes**	
44	Protocolos para medição e amostragem foram acordados. Sampling and gauging protocols are agreed (23.5.3.2, 23.7.7.5)	□ **Sim, Yes**	□ **Sim, Yes**	
45	Foram estabelecidos procedimentos para operações de carga, abastecimento e lastro. Procedures for cargo, bunkers and ballast handling operations are agreed (21.4, 21.5,21.6)	□ **Sim, Yes**	□ **Sim, Yes**	
46	Controles necessários para gerenciamento da transferência de carga foram acordados. Cargo transfer management controls are agreed (12.1)	□ **Sim, Yes**	□ **Sim, Yes**	
47	Exigências para limpeza de tanques, incluindo operações de COW, foram acordadas. Cargo tank cleaning requirements, including crude oil washing, are agreed (12.3, 12.5,21.4.1) - See also parts 7B/7C as applicable	□ **Sim, Yes**	□ **Sim, Yes**	Ver também partes 7B/7C, se aplicáveis See also parts 7B/7C as applicable
48	Meios para desgaseificação de tanque de carga foram acordados. Cargo tank gas freeing arrangements agreed (12.4)	□ **Sim, Yes**	□ **Sim, Yes**	See also part 7C See also part 7C
49	Exigências para manuseio dos resíduos de carga e de combustíveis foram acordadas. Cargo and bunker slop handling requirements agreed (12.1, 21.2, 21.4	□ **Sim, Yes**	□ **Sim, Yes**	See also part 7C See also part 7C
50	Rotinas para verificações regulares da operação de transferência da carga foram acordadas.	□ **Sim, Yes**	□ **Sim, Yes**	

	Routine for regular checks on cargo transferred are agreed (23.7.2)			
51	Procedimentos para alarmes e parada de emergência foram acordados. Emergency signals and shutdown procedures are agreed (12.1.6.3, 18.5, 21.1.2)	□ **Sim, Yes**	□ **Sim, Yes**	
52	As Folhas de Informação de Segurança de Produtos Químicos (FISPQ) estão disponíveis. Safety data sheets are available (1.4.4, 20.1, 21.4)	□ **Sim, Yes**	□ **Sim, Yes**	
53	Os perigos referentes aos produtos que serão transferidos foram discutidos. Hazardous properties of the products to be transferred are discussed (1.2, 1.4)	□ **Sim, Yes**	□ **Sim, Yes**	
54	O Isolamento Elétrico entre o navio e o Terminal é eficaz. Electrical insulation of the tanker/Terminal interface is effective (12.9.5, 17.4, 18.2.14)	□ **Sim, Yes**	□ **Sim, Yes**	
55	Procedimentos associados ao sistema de alívio de pressão de tanques e de operação com sistema fechado foram acordados. Tank venting system and closed operation procedures are agreed (11.3.3.1, 21.4, 21.5, 23.3.3	□ **Sim, Yes**	□ **Sim, Yes**	
56	Parâmetros para operação com retorno de vapor foram acordados. Vapor return line operational parameters are agreed (11.5, 18.3, 23.7.7)	□ **Sim, Yes**	□ **Sim, Yes**	
57	Foram estabelecidas medidas para evitar retorno de carga. Measures to avoid back-filling are agreed (12.1.13.7)	□ **Sim, Yes**	□ **Sim, Yes**	
58	A condição das conexões de carga e abastecimento fora de uso é satisfatória. Status of unused cargo and bunker connections is satisfactory (23.7.1, 23.7.6)	□ **Sim, Yes**	□ **Sim, Yes**	
59	Os rádios portáteis VHF e UHF são intrinsecamente seguros. Portable very high frequency and ultra high	□ **Sim, Yes**	□ **Sim, Yes**	

	frequency radios are intrinsically safe (4.12.4, 21.1.1)			
60	Procedimentos para recebimento de nitrogênio do Terminal para os tanques de carga foram acordados. Procedures for receiving nitrogen from Terminal to cargo tank are agreed (12.1.14.8)	□ **Sim, Yes**	□ **Sim, Yes**	

ADICIONAL PARA NAVIOS QUÍMICOS VERIFICAÇÕES ANTES DA OPERAÇÃO

ADDITIONAL FOR CHEMICAL TANKERS CHECKS PRE-TRANSFER

PARTE 5B. NAVIO E TERMINAL: LÍQUIDOS QUÍMICOS A GRANEL. VERIFICAÇÕES ANTES DA OPERAÇÃO PART 5B. TANKER AND TERMINAL: BULK LIQUID CHEMICALS. PRE-TRANSFER CHECKS				
Item	**Verificação** Check	**Condição Vessel** Tanker Status	**Condição Terminal** Terminal Status	**Observações** Remarks
61	O certificado do inibidor (se exigido) foi recebido do fabricante. Inhibitor certificate received (if required) from manufacture	□ **Sim, Yes**	□ **Sim, Yes**	
62	O equipamento de proteção individual está identificado e disponível. Appropriate personal protective equipment identified and available (4.8.1)	□ **Sim, Yes**	□ **Sim, Yes**	
63	Foram estabelecidas medidas para evitar contato físico do pessoal com a carga. Countermeasures against personal contact with cargo are agreed (1.4)	□ **Sim, Yes**	□ **Sim, Yes**	
64	Foi estabelecida a vazão com o tempo de fechamento das válvulas automáticas e o sistema de parada de emergência. Cargo handling rate and relationship with valve closure times and automatic shutdown systems	□ **Sim, Yes**	□ **Sim, Yes**	

	is agreed (16.8, 21.4, 21.5, 21.6)			
65	O sistema de medição de nível está operacional e as regulagens de alarme foram testadas. Cargo system gauge operation and alarm set points are confirmed (12.1.6.6.1)	□ **Sim, Yes**	□ **Sim, Yes**	
66	Estão sendo utilizados instrumentos portáteis de detecção de vapor, adequados à carga. Adequate portable vapor detection instruments are in use (2.4)	□ **Sim, Yes**	□ **Sim, Yes**	
67	Foram trocadas informações sobre os meios e procedimentos de combate a incêndios. Information on firefighting methods and procedures is exchanged (5, 19)	□ **Sim, Yes**	□ **Sim, Yes**	
68	Os mangotes de carga são compatíveis com o produto que está sendo manuseado. Transfer hoses confirmed suitable for the product being handled (18.2)	□ **Sim, Yes**	□ **Sim, Yes**	
69	Confirme se a carga é manuseada por apenas um sistema instalado de rede permanente. Confirm cargo handling is only by a permanente installed pipeline system	□ **Sim, Yes**	□ **Sim, Yes**	
70	Existem procedimentos para receber nitrogênio do Terminal para inertização ou purga. Procedures are in place to receive nitrogen from the Terminal for inerting or purging (12.1.14.8)	□ **Sim, Yes**	□ **Sim, Yes**	

ADICIONAL PARA NAVIOS DE GÁS VERIFICAÇÕES ANTES DA OPERAÇÃO

ADDITIONAL FOR GAS TANKERS CHECKS PRE-TRANSFER

PARTE 5C. NAVIO E TERMINAL: GÁS LIQUEFEITO. VERIFICAÇÕES ANTES DA OPERAÇÃO PART 5C. TANKER AND TERMINAL: LIQUEFIED GAS. PRE-TRANSFER CHECKS				
Item	**Verificação** Check	**Condição Vessel** Tanker Status	**Condição Terminal** Terminal Status	**Observações** Remarks
71	O certificado do inibidor (se exigido) foi recebido do fabricante? Inhibitor certificate received (if required) from manufacturer	□ **Sim, Yes**	□ **Sim, Yes**	
72	O sistema de borrifo de água está operacional. Water spray system is operational (5.3.1, 19.4.3)	□ **Sim, Yes**	□ **Sim, Yes**	
73	O equipamento de proteção individual está identificado e disponível. Appropriate personal protective equipment is identified and available (4.8.1)	□ **Sim, Yes**	□ **Sim, Yes**	
74	As válvulas de controle remoto estão operacionais. Remote control valves are operational	□ **Sim, Yes**	□ **Sim, Yes**	
75	As bombas de carga e os compressores estão operacionais. Cargo pumps and compressors are operational	□ **Sim, Yes**	□ **Sim, Yes**	
76	A máxima pressão de trabalho foi estabelecida entre o navio e o Terminal. Maximum working pressures are agreed between tanker and Terminal (21.4, 21.5, 21.6)	□ **Sim, Yes**	□ **Sim, Yes**	
77	A planta de reliquefação ou um sistema de controle de vapor está operacional. Reliquefaction or boil-off control equipment is operational	□ **Sim, Yes**	□ **Sim, Yes**	
78	O equipamento de detecção de gases está adequadamente regulado para a carga. Gas detection equipment is appropriately set for the cargo (2.4)	□ **Sim, Yes**	□ **Sim, Yes**	

79	O sistema de medição de nível está operacional e as regulagens de alarme foram confirmadas. Cargo system gauge operation and alarm set points are confirmed (12.1.6.6.1)	□ **Sim, Yes**	□ **Sim, Yes**	
80	O sistema de parada de emergência foi testado e está operacional. Emergency shutdown systems are tested and operational (18.5)	□ **Sim, Yes**	□ **Sim, Yes**	
81	A relação da vazão com o tempo de fechamento das válvulas automáticas e o sistema de parada de emergência foi acordada. Cargo handling rate and relationship with valve closure times and automatic shutdown systems is agreed (16.8, 21.4, 21.5, 21.6)			
82	As temperaturas e pressões máximas e mínimas da carga a ser transferida foram acordadas. Maximum/minimum temperatures/pressures of the cargo to be transferred are agreed (21.4, 21.5, 21.6)			
83	As regulagens das válvulas de alívio dos tanques de carga foram confirmadas. Cargo tank relief valve settings are confirmed (12.11, 21.2, 21.4)			

PARTE 6. NAVIO E TERMINAL: ACORDOS PARA ANTES DO INÍCIO DA OPERAÇÃO PART 6. TANKER AND TERMINAL: AGREEMENTS PRE-TRANSFER				
Parte 5 Part 5	**Acordos** Agreement	**Detalhes** Details	**Rubrica Navio** Tanker Initials	**Rubrica Terminal** Terminal Initials
32	Pronto para manobrar do navio Tanker maneuvering readiness	Período máximo para estar totalmente pronto para manobrar:		

		Notice period (maximum) for full readiness to maneuver: Período sem máquinas (se permitido): Period with engines stopped (if permitted):		
33	Protocolos de proteção Security protoco	Nível de proteção: Security level: Exigências locais: Local requirements:		
33	Sistemas de comunicação navio/Terminal Effective tanker/Terminal Communications	Sistema primário: Primary system: Sistema secundário: Backup system:		
35	Supervisão operacional e vigias Operational supervision and Watchkeeping	Navio: Tanker: Terminal: Terminal Operador de Píer – inspetor náutico – vigilante de Píer: Loading master - safety inspector - Terminal watchman		
37 **38**	Áreas para fumantes e restrições a luzes desprotegidas Dedicated smoking areas and naked flame restrictions	Navio: Tanker: Terminal: Terminal Não permitido às proximidades dos berços Not allowed around berths		
45	Ventos e correntes máximos, condições de mar, altura da onda e outros fatores ambientais Maximum wind, current and sea/swell criteria or other environmental factors	Parar a operação: Stop cargo transfer: Desconetar: Disconnect: Desatracar: Unberth:		
45 **46**	Limites para manuseio de carga, abastecimento e lastro Limits for cargo, bunkers and ballast handling	Maximum flow: Maximum transfer rates: Vazão final: Topping-off rates: Pressão máxima no manifolde: Maximum manifold pressure: Temperatura da carga: Cargo temperature: Outras limitações: Other limitations		
45 **46**	Controle de surto de pressão Pressure surge control	Quantidade mínima de tanques alinhados: Minimum number of cargo tanks open: Protocolo para troca de tanques: Tank switching protocols:		

		Vazão máxima de operação: Full load rate: Vazão para top: Topping-off rate: Tempo de fechamento das válvulas automáticas: Closing time of automatic valves:		
46	Procedimentos de supervisão de transferência da carga Cargo transfer management Procedures	Períodos de notificação para ações: Action notice periods: Protocolo de parada da transferência: Transfer stop protocols:		
50	Rotina para verificações regulares da quantidade de carga movimentada acordadas. Routine for regular checks on cargo transferred are agreed	Verificação de rotina da quantidade transferida: Routine transferred quantity checks:		
51	Alarme de emergência Emergency signals	Navio: Tanker: Terminal: Terminal:		
55	Sistema de alívio de tanques Tank venting system	Procedimentos: Procedure:		
55	Operações fechadas Closed operations	Exigências: Requirements:		
56	Linha de retorno de vapor Vapor return line	Parâmetros operacionais: Operational parameters: Vazão máxima: Maximum flow rate:		
60	Fornecimento de nitrogênio pelo Terminal Nitrogen supply from Terminal	Procedimentos de recebimento: Procedures to receive: Pressão máxima: Maximum pressure: Flow: Flow rate:		
83	Somente para navios de gás: Regulagem das válvulas de alívo For gas tanker only: cargo tank relief valve settings	Tanque 1: Tank 1: Tanque 2: Tank 2: Tanque 3: Tank 3: Tanque 4: Tank 4; Tanque 5: Tank 5: Tanque 6: Tank 6: Tanque 7: Tank 7:		
xx	Adicionais e exceções Exceptions and additions	Questões especiais que devem ser de conhecimento de ambas as partes: Special issues that both parties should be aware of:		

PARTE 7A. GENERALIDADES DO NAVIO: VERIFICAÇÕES ANTES DA OPERAÇÃO PART 7A. GENERAL TANKER: PRE-TRANSFER CHECKS			
Item	**Verificação** Check	**Condição** Status	**Observações** Remarks
84	As bandejas coletoras a bordo estão corretamente posicionadas e vazias. Portable drip trays are correctly positioned and empty (23.7.5)	□ **Sim, Yes**	
85	Todas as válvulas individuais de fornecimento de gás inerte para os tanques de carga estão seguramente de acordo com o plano de carga. Individual cargo tank inert gas supply valves are secured for cargo plan (12.1.13.4)	□ **Sim, Yes**	
86	O sistema de gás inerte está fornecendo gás inerte com teor de oxigênio não superior a 5%. Inert gas system delivering inert gas with oxygen content not more than 5% (11.1.3)	□ **Sim, Yes**	
87	Os alarmes de nível alto dos tanques de carga estão operacionais. Cargo tank high level alarms are operational (12.1.6.6.1)	□ **Sim, Yes**	
88	Todas as aberturas dos tanques de carga, lastro e de abastecimento estão seguramente fechadas. All cargo, ballast and bunker tanks openings are secured (23.3)	□ **Sim, Yes**	

PARTE 7B. NAVIO: VERIFICAÇÕES ANTES DA TRANSFERÊNCIA SE PREVISTO OPERAÇÃO COW PART 7B. TANKER: CHECKS PRE-TRANSFER IF CRUDE OIL WASHING IS PLANNED			
Item	**Verificação** Check	**Condição** Status	**Observações** Remarks

89	Uma cópia da lista completa de verificação prévia, preenchida, para operação COW, conforme o Manual COW aprovado do navio foi entregue ao Terminal. The completed pre-arrival crude oil washing checklist, as contained in the approved crude oil washing manual, is copied to Terminal (12.5.2, 21.2.3)	□ **Sim, Yes**	
90	As listas de verificação para uso antes, durante e depois da operação COW estão disponíveis e prontas para serem preenchidas, conforme o Manual COW aprovado do navio. Crude oil washing checklists for use before, during and after crude oil washing are in place ready to complete, as contained in the approved crude oil washing manual (12.5.2, 21.6)	□ **Sim, Yes**	

LISTA DE SEGURANÇA OPERACIONAL NAVIO/TERMINAL – VERIFICAÇÕES APÓS A REUNIÃO DE LIBERAÇÃO INICIAL

ISGOTT CHECKS AFTER PRE-TRANSFER CONFERENCE SHIP/SHORE SAFETY CHECKLIST

PARA NAVIOS QUE FARÃO LIMPEZA DE TANQUES ATRACADO E/OU DESGASEIFICAÇÃO ATRACADO

FOR TANKERS THAT WILL PERFORM TANK CLEANING ALONGSIDE AND/ OR GAS FREEING ALONGSIDE

PARTE 7C. NAVIO: VERIFICAÇÕES ANTES DE LIMPEZA E/OU DESGASEIFICAÇÃO DE TANQUES COM O NAVIO ATRACADO PART 7C. TANKER: CHECKS PRIOR TO TANK CLEANING AND/OR GAS FREEING			
Item	**Verificação** Check	**Condição** Status	**Observações** Remarks
91	As operações de limpeza de tanques foram confirmadas.	□ **Sim, Yes**	

	Permission for tank cleaning operations is confirmed (21.2.3, 21.4, 25.4.3)		
92	As operações de desgaseificação foram confirmadas. Permission for gas freeing operations is confirmed (12.4.3)	□ **Sim, Yes**	
93	Foram estabelecidos procedimentos para limpeza de tanques. Tank cleaning procedures are agreed (12.3.2, 21.4, 21.6)	□ **Sim, Yes**	
94	Se for necessária entrada em tanques de carga, foram estabelecidos procedimentos de entrada com o Terminal. If cargo tank entry is required, procedures for entry have been agreed with the Terminal (10.5)	□ **Sim, Yes**	
95	Há instalação de recebimento de resíduos e as exigências para transferência foram confirmadas. Slop reception facilities and requirements are confirmed (12.1, 21.2, 21.4)	□ **Sim, Yes**	

DECLARATION

We, the undersigned, have verified the applicable items in Parts 1 to 7, as marked and signed below:

	Navio	Terminal
Part 1A. Vessel: Pre-arrival checks		
Part 1B. Vessel: pre-arrival checks if an inert gas system is used		
Part 2. Terminal: Pre-arrival checks		
Part 3. Vessel: checks after berthing		
Part 4. Terminal: checks after berthing		
Part 5A. Vessel and Terminal: Conference before cargo transfer operations		
Part 5B. Vessel and Terminal: liquid chemicals. Checks before transfer		
Part 5C. Vessel and Terminal: liquefied gas. Checks before transfer		
Part 6. Vessel and Terminal: Agreements before the transfer		
Part 7A. Vessel general: checks before the transfer		
Part 7B. Vessel: checks before transfer if COW operations planned		

Part 7C. Vessel: checks before tank cleaning and/or gas freeing		
In accordance with the guidance contained in chapter 25 of the ISGOTT, we are certain that the statements we have made are correct, to the best of our knowledge and that the vessel and the Terminal are in agreement to carry out the operation for transfer of the cargo. Also, we have agreed to carry out the re-verifications noted in parts 8 and 9 of the ISGOTT LVSO, which shall occur at intervals of not more than ____ hours for the vessel and not more than ____ hours for the Terminal. If we become aware that the condition of any item has changed, we will immediately inform the other party.		

Navio		**Terminal**	
Name		**Name**	
Função		**Função**	
Assinatura		**Assinatura**	
Data		**Data**	
Hora		**Hora**	

LISTA DE SEGURANÇA OPERACIONAL NAVIO/TERMINAL – VERIFICAÇÕES DURANTE A OPERAÇÃO

ISGOTT CHECKS DURING TRANSFER SHIP/SHORE SAFETY CHECKLIST

REVERIFICAÇÕES REPETITIVE CHECKS

PARTE 8. NAVIO: REVERIFICAÇÕES DURANTE E DEPOIS DA OPERAÇÃO PART 8. TANKER: REPETITIVE CHECKS DURING AND AFTER TRANSFER								
Item	**Verificação** Check	**Hora** Time	**Hora** Time	**Hora** Time	**Hora** Time	**Hora** Time	**Hora** Time	**Observações** Remarks
Intervalo de tempo: horas Interval time: hrs								
8	Os registros de pressão e teor do gás inerte estão operacionais. Inert gas system pressure and oxygen recording operational	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
9	O sistema de gás inerte e os equipamentos associados estão operacionais. Inert gas system and all associated equipment are operational	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
11	Os tanques de carga estão com pressão positiva. Cargo tank atmospheres are at positive pressure	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
18	A amarração está segura. Berthing arrangement is effective	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
19	O acesso do Terminal para o navio e do navio	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	

	para o Terminal estão seguros. Access to and from the tanker is safe							
20	Os embornais e as bandejas estão bujonados. Scuppers and savealls are plugged	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
23	As aberturas externas da superestrutura são controladas. External openings in superstructures are controlled	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
24	A ventilação da casa de bombas está operacional. Pumproom ventilation is effective	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
28	O navio está pronto para manobrar enquanto estiver atracado. Tanker is ready to move at agreed notice period	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
29	As defensas estão operacionais. Fendering is effective	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
33	As comunicações estão operacionais. Communications are effective	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
35	Supervisão da operação e vigias são adequados. Supervision and watchkeeping is adequate	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
36	Os tripulantes a bordo são suficientes e estão disponíveis para situações de emergência. Sufficient personnel are available to deal with an emergency	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
37	As restrições ao fumo e uso das áreas designadas para fumantes estão sendo cumpridos. Smoking restrictions and designated smoking areas are complied with	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
38	As restrições para luzes desprotegidas estão sendo cumpridas. Naked light restrictions are complied with	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
39	Está sendo controlado o uso de dispositivos e equipamentos elétricos em zonas perigosas. Control of electrical devices and equipment in hazardous zones is complied with	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	

40 **41** **42** **51**	O plano para resposta a emergências é satisfatório. Emergency response preparedness is satisfactory	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
54	O isolamento elétrico navio/Terminal está operacional. Electrical insulation of the tanker/Terminal interface is effective	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
55	Foram estabelecidos sistema de alívio de tanques e de operação por sistema fechado. Tank venting system and closed operation procedures are as agreed	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
85	Foram estabelecidos controles para as válvulas individuais de fornecimento de gás inerte para os tanques de carga. Individual cargo tank inert gas valves settings are as agreed	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
86	O sistema de gás inerte continua fornecendo gás inerte com teor de oxigênio não superior a 5%. Inert gas delivery maintained at not more than 5% oxygen	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
87	Os alarmes de nível alto dos tanques de carga estão operacionais. Cargo tank high level alarms are operational	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	□ **Sim, Yes**	
Rúbricas – Initials								

LACRES A BORDO – SEALS ON BOARD	
Separador de água e óleo Oil water separator	
ODME – válvula fora de borda ODME – Overboard valve	
ODME Monitor de lastro ODME Monitoring Equipment	
Esgoto de emergência Emergency bilge	
Caixa mar – Sea chest	
Tanque séptico - Sewage	

M – LNG PIER SPECIFIC INFORMATION

M.1 – LNG BERTH CAPACITY

East Berth Capacity

(designated for supply vessel berthing)

Dimensions of supported vessels:

Minimum

Total length (LOA): 235 m Beam moulded: 34 m

Draft moulded: 10 meters Deadweight (DWT): 48500 ton

Cargo capacity: 70,000 m3.

Reference – Methane Arctic and Methane Polar LNG Ships

Maximum

Total length (LOA): 315 m

Draft moulded: 12 meters

Cargo capacity: 210,000 m3.

Reference – Q-FLEX LNG ship

West Berth Capacity

(designated for FSRU berthing)

As a reference, the approximate dimensions are as follows:

Total length (LOA): 300 m Moulded beam: 50 m

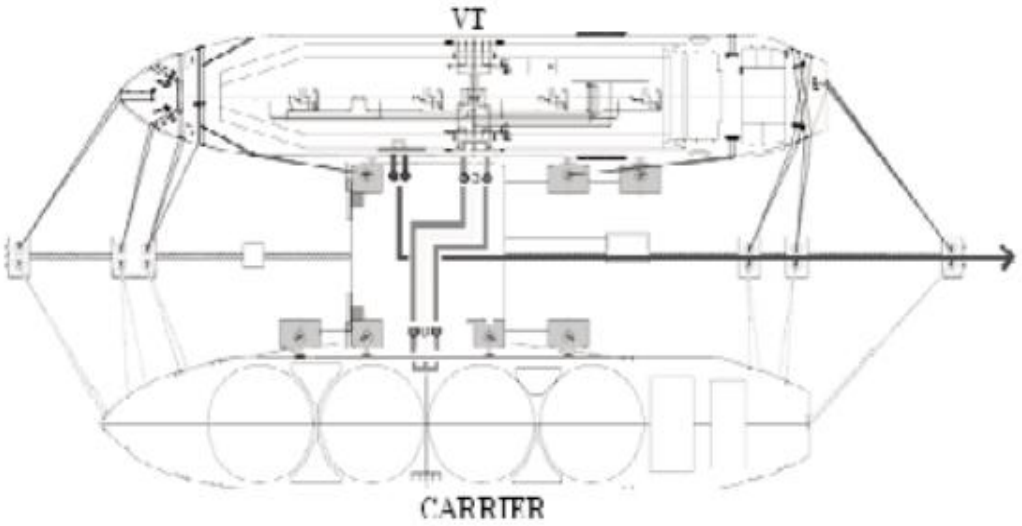
Depth: 26 m

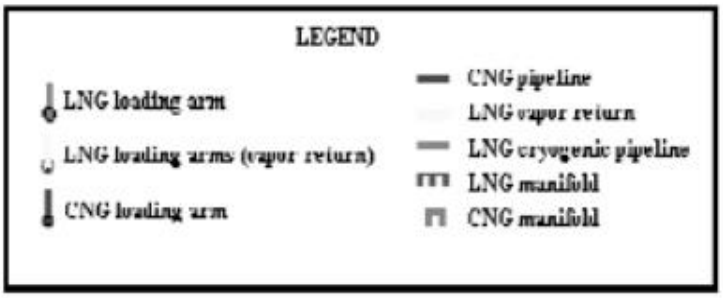
Draft moulded: 12 m

Deadweight (DWT): 80,000 tons

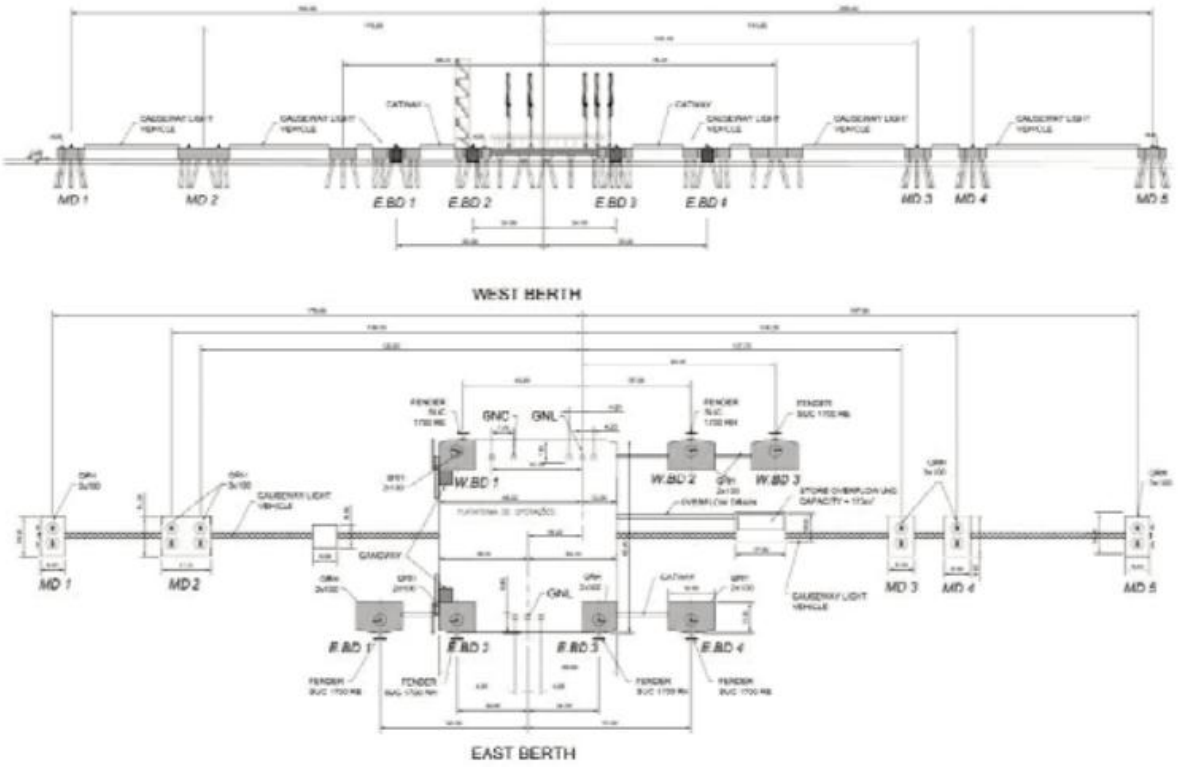
Minimum load capacity: 125,000 m3

As established in the NPCP-RJ, the maximum air draft for navigation under the central span of the Rio – Niterói bridge is 60 m.


VI
CARRIER


LEGEND
LNG loading arm
LNG loading arms (vapor return)
CNG loading arm
CNG pipeline
LNG vapor return
LNG cryogenic pipeline
LNG manifold
CNG manifold

M.2 – General process layout



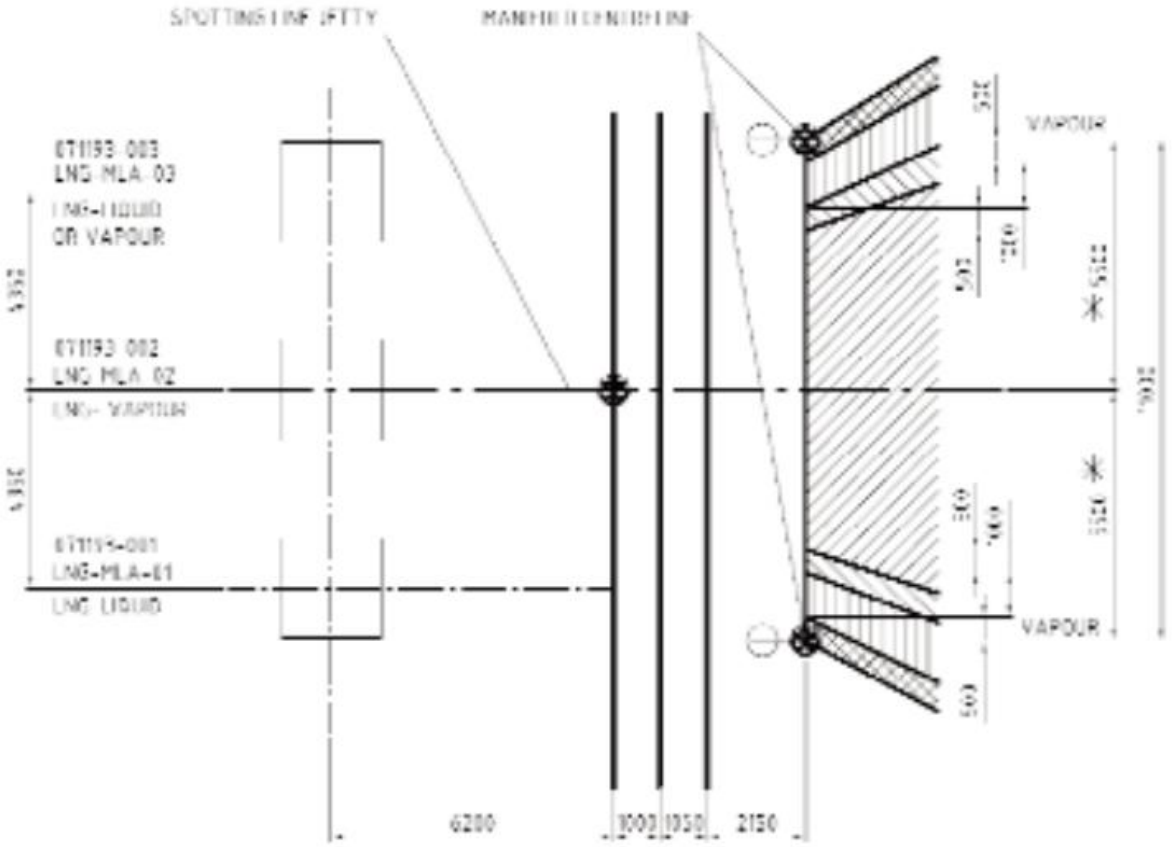
M.3 – FENDERS

M.4 – LOADING ARM ENVELOPE

Supply vessel		
Pre-alarm required	–	Yes
Reach pre-alarm	(m)	5.7
1st stage reach alarm	(m)	6.2
2nd stage reach alarm	(m)	7.2
Maximum reach extension	(m)	7.7
Lower limit of operating envelope, LLWL	(m)	14.8
Upper limit of operating envelope, HHWL	(m)	25.95
Maximum swivel impulse to the right	–	5.5
Maximum swivel impulse to the left	–	5.5
2nd stage swivel alarm to the right	(m)	5.0
2nd stage swivel alarm to the left	(m)	5.0
1st stage swivel alarm to the right	(m)	4.0
1st stage swivel alarm to the left	(m)	4.0
Swivel pre-alarm to the right	(m)	3.5
Swivel pre-alarm to the left	(m)	3.5

Guanabara LNG VT		
Pre-alarm required	–	Yes
Reach pre-alarm	(m)	4.9
1st stage reach alarm	(m)	5.4
2nd stage reach alarm	(m)	6.4
Maximum reach extension	(m)	6.9
Lower limit of operating envelope, LLWL	(m)	15.9
Upper limit of operating envelope, HHWL	(m)	23.9
Maximum swivel impulse to the right	–	5.5
Maximum swivel impulse to the left	–	5.5
2nd stage swivel alarm to the right	(m)	5.0
2nd stage swivel alarm to the left	(m)	5.0
1st stage swivel alarm to the right	(m)	4.0
1st stage swivel alarm to the left	(m)	4.0
Swivel pre-alarm to the right	(m)	3.5
Swivel pre-alarm to the left	(m)	3.5

M.5 – Manifolds



M.6 – FIREFIGHTING SYSTEM