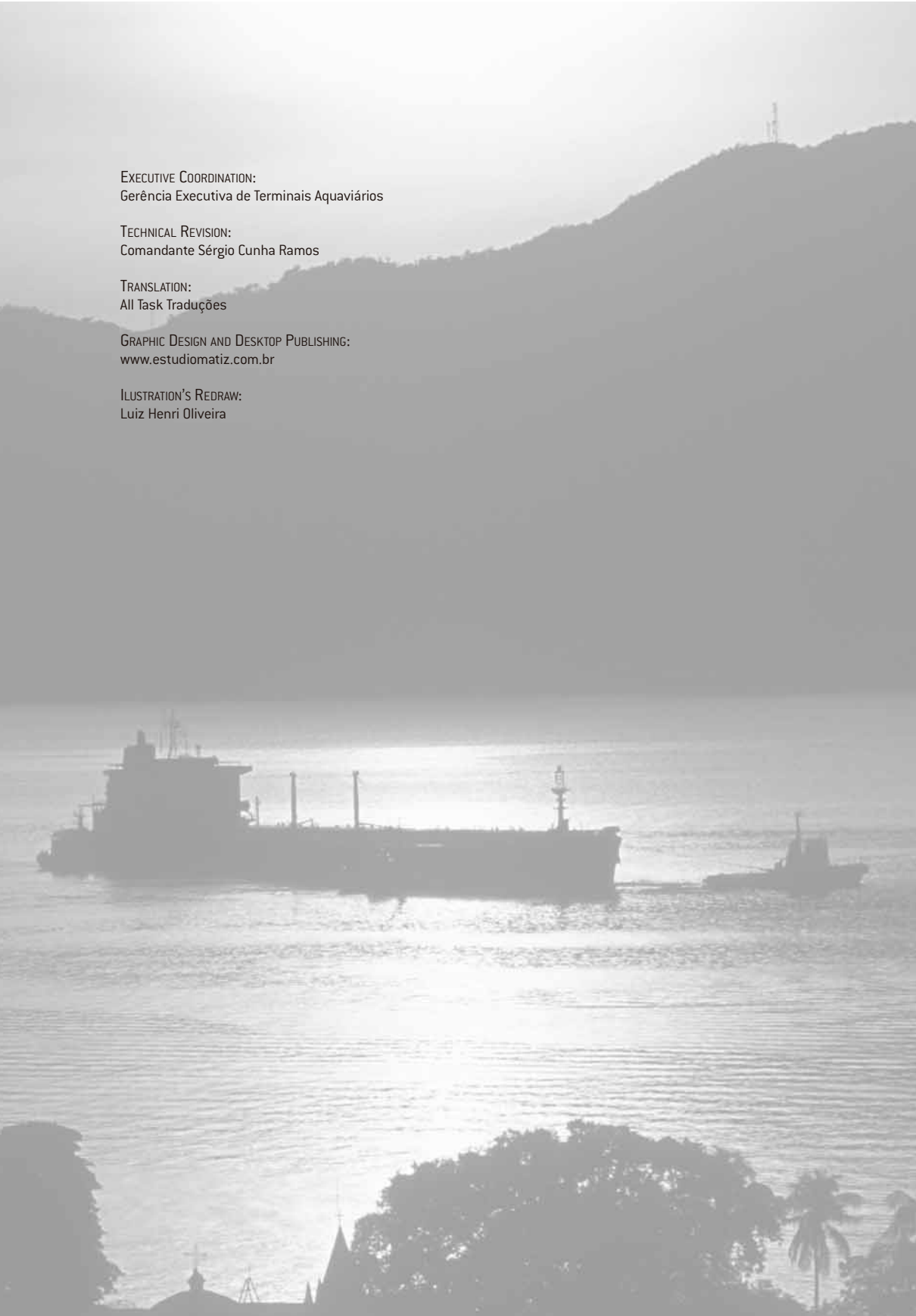
PETROBRAS TRANSPORTE S.A.
TRANSPETRO

PORT INFORMATION

Terminal
PARANAGUÁ

1st edition / 2006



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SUMMARY

1 Introduction

This publication has been prepared by Petrobras Transporte S.A. (Transpetro), which operates the Tepar Terminal in Paranaguá. It provides essential information, in Portuguese and English, on the ships operating at the Terminal. This document is also distributed internally in the organization, and to the interested port parties, local and national authorities.

The information herein included aims to complement, and never supersede or alter any national or international legislation, instructions, guidance or official publications. Therefore, anything that conflicts with any of the aforementioned documents should be ignored.

The Terminal reserves itself the right to change any of its operational features herein presented, with no advance notice.

Where any information is found to be incorrect and requiring updating, please contact:

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The most recent version of this document may be found on the web site below: **www.transpetro.com.br**.

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Definitions

Appa – Administration of the Ports of Paranaguá and Antonina.

BP – Bollard pull – Ship's longitudinal static traction.

DHN – Diretoria de Hidrografia e Navegação.

DWT – Deadweight tonnage.

IMO – International Maritime Organization.

Isgott – International Safety Guide for Oil Tankers and Terminals.

LCP – Local Contingency Plan.

Maritime authority – The maritime authority representative, within the maritime space of the State of Paraná, which includes the areas of the Organized Ports of Paranaguá and Antonina, is the commander of the Ports of Paraná, headquartered in Paranaguá.

Ocimf – Oil Companies International Marine Forum.

Port authority – Port administration in the Organized Port area, operating in an integrated and harmonious manner with all segments operating therein.

Quarter (dry) tide – Sequence of low and flood tides of the water surface with the lowest variation amplitudes during the waning and crescent moon periods.

Squat effect – Increase of a ship's draft as a result of an increase in the displacement speed, especially in restricted waters.

Syzygy tide – Sequence of low and flood tides of the water surface with the highest variation amplitudes during the full and new moon periods.

Tepar – Transpetro/DT/TA/PR-SC/Paranaguá – Marine Terminal of Paranaguá.

UN-Bunker – Petrobras department that trades the bunker stored in the Transpetro Terminals.

UTC – Coordinated Universal Time.

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Charts and Reference Documents

Information on the Terminal can be found in the publications below. The Appendix A illustrates schematically the Charts that include berths and approaches.

3.1 Charts

Area	Chart Number
	Brazil (DHN)
Surroundings of the Paranaguá Bar	1820
Paranaguá Bar	1821
From Ilha do Mel to Paranaguá	1823
From the Paranaguá Bar to Antonina	1824

3.2 Other Publications

Type/Subject	Publisher or Source
	Brazil (DHN)
Normas e Procedimentos da Capitania dos Portos	NPCP
Navigation support on the South Coast	South Coast Route


WELD

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Documents and Information Exchange

The items listed below must be provided by the Terminal or ship, as indicated on the table.

Information	Prepared by:			Delivered to:			Comments
	Terminal	Ship	Both	Terminal	Ship	Both	
Before Arrival							
Estimated Time of Arrival (ETA) and ship information		X		X			As per Isgott – Chapter 3
Essential Terminal information	X				X		As per Isgott – Chapter 3
Before Cargo or Bunker Transfer							
Details about on-board cargo/slop/ballast		X		X			As per Isgott – Chapter 5
Essential operating information	X				X		As per Isgott – Chapter 5
Ship/Shore Safety Checklist			X			X	As per Isgott – Appendix A

continue

Information	Prepared by:			Delivered to:			Comments
	Terminal	Ship	Both	Terminal	Ship	Both	
During Cargo or Bunker Transfer							
Repeat Ship/Shore Safety Checklist			X			X	As per Isgott – Appendix A
After Cargo or Bunker Transfer, before Departure							
Information required for unberthing the ship			X			X	Quantity of fuel and water on-board
After Unberthing, on Leaving Port							
Information concerning departure from port		X		X			Pilot disembarkation time and port departure time

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Description of the Port

5.1 General Description

The Port of Paranaguá is the largest port in the south of Brazil, and handles primarily the export of grains, while it is also used by Paraguay for transporting its customs cargo (in both directions), according to an agreement signed with Brazil. The port has always been the major exporting port in the region that most produces agricultural products in Brazil. Today, the Commercial Docks have berths that extend 2,616 meters, equipped with 13 berths of differentiated drafts, according to the physical structure of each berth. This allows for the simultaneous berthing of 12 to 14 ships, from small cabotage vessels to bulk carrier ships of 270 meters in length.

Regarding the outline of the Brazilian coast, the Port of Paranaguá has a privileged location, as it is strategically located, thus enabling minimum access distances to the large production centers.

By looking at the export data, we may verify that the area covered by the Port of Paranaguá is more than 800,000 square kilometers, currently handling cargoes originating from the entire State of Paraná (PR), and the states of Santa Catarina (SC), Mato Grosso (MT), Mato Grosso do Sul (MS), Rondônia (RO), São Paulo (SP) and Rio Grande do Sul (RS), as well as from Bolivia, Argentina and Paraguay.

Separated from the Commercial Docks by a safe distance, the Tanker Marine Terminal of Paranaguá has two distinct berthing places, which are the main pier, also denominated

the Flammable Products' Dock, and the secondary pier, also known as the Barge Pier. Both of them are operated by Transpetro, but are an integral part of the port complex, or Organized Port of Paranaguá. These two piers are located one to the east and the other to the west of a central raised access platform, where a third pier, named Cattalini Pier, originates and extends towards the NW, but which is not an integral part of the facilities at the Marine Terminal of Paranaguá, and is therefore, not operated by Transpetro and not included in this port information.

The main pier, with its external and internal mooring berths, is used both for loading and discharging light and dark oil by-products, alcohol, methanol and MTBE. The secondary pier is used only for supplying the tugs or loading the barges.

Access by ships is not limited by their size, but by their length (LOA) and draft. In the external berth of the main pier, known as PP-1, the maximum LOA is 200 meters, and the maximum draft permitted is 11.58 meters (38 feet). On PP-2, or the internal berth, the maximum acceptable LOA for the ship is 190 meters, and the maximum draft, 10.06 meters (33 feet).

The Terminal operates uninterruptedly, and is able to transfer products 24 hours a day. However, the berthing/unberthing maneuvers in the internal berth must only be carried out during low-intensity falling tides (less than 0.4 knot).

5.2 Location

5.2.1 Coordinates

The Terminal facilities are located at the following coordinates: latitude 25º 30' S and longitude 048º 30' W.

5.2.2 General geographical location

The Marine Terminal of Paranaguá is located to the NW of the city of Paranaguá, and is referenced by the coordinates lat. 25º 30' S and long. 048º 30' W, near the south bank of the dredged channel that accesses the port, and about 13 miles from the mouth of the bar. It is to be found on the stretch of the Brazilian southern coast running between the Bom Abrigo Island and Arvoredo Island, in the State of Paraná. It is demarcated by the coordinates:

→ Latitude: 25º 29' 45" S and 25º 30' 12" S
→ Longitude: 048º 32' 06" W and 048º 30' 00" W

5.3 Approaching and Accessing the Terminal

5.3.1 General description

When approaching the Port of Paranaguá, the navigator may use the nautical charts 1820, 1821 and 1822, published by the DHN.

When using radar, the navigators should bear in mind that both to the N and S of Paranaguá, the coastline is very low, and thus, their echo radar will be sensitive only at very close distances. In this situation, we recommend the use of echo-bathymeter as an aid to get an estimate of the rake towards land.

The Port of Paranaguá is usually accessed using the Galheta channel, 12 miles long, 200 meters wide, beacon signaled with luminous buoys and dredged to a depth of 12.5 meters. The critical points in this channel are located between the buoy pairs 3-4 and 7-8, where there are strong transversal currents. Ships with draft up to 21 feet may also approach Paranaguá via the N bar or southeast channel, provided they fully comply with the alignments indicated on the charts, with a precise and narrow navigation.

Approaching the N bar is only possible for vessels with small draft, and with extensive local knowledge, and in good weather.

To approach Paranaguá safely, bearing in mind the dangerous sandbars (Superagui, Ciganos, Palmas and Galhetas), the most important precaution is always keep the ship outside the 10-meters isobathic line indicated on the charts.

When passing through the navigation channel, the ship approaching the port, after passing the buoy pair 7-8, may vary its governing speed between 14.0 and 8.0 knots. Speed can be reduced, since this does not impair navigation safety. The pilot onboard will evaluate this condition during maneuvers.

Where there are support vessels executing beaconing services, a Naval Police boat, a dredger, underwater service and hydro-oceanographic vessels, and other boats with prior authorization from the port and maritime authorities, the speed of ships transiting in the navigation channels must be reduced to 8.0 knots where this does not impair the navigation safety.

Crossing or overtaking by ships between the alignment of luminous buoy pairs 1A-2A and 5-6 is prohibited. In the other stretches of the navigation channel, the ships with drafts compliant with the depths indicated on the nautical charts, when judged apt to do so, may cross or overtake other ships passing through by the channel.

The maneuvers near the mooring berth, that is, berthing, changing berths and/or board change maneuvers, in any tidal situation, will be conditional on the water depth under

the keel, and will be determined by Appa, on the advice of the pilot, when the maneuver takes place.

5.3.2 Anchorage areas

The first anchorage area at the disposal of the ships heading to Paranaguá is the pilot embarkation area, as referred to in item 5.3.5 of these instructions. The reference coordinates of the location are, lat. 25º 31', 10 S and long. 048º 15', 50 W, and it is located between the entrances of the Southeast and Galheta channels near buoy 1. Depth here ranges from 13 to 18 meters, and the seabed is sandy in nature, the area being unsheltered against winds, on the open sea.

Within the channel, and along the dredged strip, there are a number of maritime areas designated for the anchorage area, according to the descriptions and purposes thereof specified below, which will serve for anchoring, loading and discharging, as well as for inspection by the sanitary authorities and the maritime police. Also, there are certain areas designated for special platforms and vessels; warships; ships under repair or waiting to berth; ships carrying hazardous cargoes; ships waiting for fuel or lubricant oil supply for their own use, namely:

AREA 1

Designated for ships operating in the Port of Antonina and berthed ships which are loading/discharging, and using specific Lash-type ship equipment.

Barges handling the transshipment of cargo to the Port of Antonina may only anchor in the areas adjacent to those already determined as anchorage areas and access channels, provided the depths indicated in the nautical charts are compliant with their drafts.

→ **Depth:** *7* to 11 meters

Points	South Latitude	West Longitude
01	25º 28' 33"	048º 37' 41"
02	25º 28' 51"	048º 37' 41"
03	25º 28' 46"	048º 38' 37"
04	25º 28' 29"	048º 38' 37"

AREA 2

Provisionally designated for ships of the following lengths or who find themselves in one of the following situations, and complying with the order of anchoring priority in which they are listed:

→ Ships with maximum lengths of 210 meters and up to 37-foot draft;
→ Ships operating at the Port of Antonina;
→ Ships requiring refueling with fuel oil and/or lubricant for their own consumption.

The anchorage location will be established according to the depth in the area where the ship turns.

→ **Depth:** 7 to 14 meters.

Points	South Latitude	West Longitude
01	25º 29' 31"	048º 31' 35"
02	25º 29' 50"	048º 31' 35"
03	25º 30' 02"	048º 33' 31"
04	25º 29' 40"	048º 33' 31"

AREA 3

Designated for ships less than 180 meters long.

→ **Depth:** 6 to 10 meters.

Points	South Latitude	West Longitude
01	25º 29' 09"	048º 30' 53"
02	25º 29' 34'	048º 30' 53"
03	25º 29' 34"	048º 31' 35"
04	25º 29' 09"	048º 31' 35"

AREA 4

Designated for ships less than 180 meters long.

→ **Depth:** 7 to 11 meters.

Points	South Latitude	West Longitude
01	25º 29' 17"	048º 30' 21"
02	25º 29' 27'	048º 30' 20"
03	25º 29' 28"	048º 31' 53"
04	25º 29' 09"	048º 31' 53"

AREA 5

Designated for ships to be visited by the port health authorities and others, when the ship conditions so recommend.

→ **Depth:** 10 to 13 meters.

Points	South Latitude	West Longitude
01	25º 29' 47"	048º 27' 12"
02	25º 30' 08"	048º 27' 12"
03	25º 30' 03"	048º 28' 02"
04	25º 29' 48"	048º 28' 02"

AREA 6

Designated for ships over 180 meters long, and ships with any length needing to be refueled with fuel oil and/or lubricants for their own consumption.

→ **Depth:** 7 to 14 meters.

Points	South Latitude	West Longitude
01	25º 29' 09"	048º 26' 20"
02	25º 29' 30'	048º 26' 20"
03	25º 29' 34"	048º 29' 46"
04	25º 29' 11"	048º 29' 46"

AREA 7

Designated for ships in the following situations or of the following types/lengths, when complying with the anchoring order of priority in which they are listed:

→ Ships of any size under quarantine;
→ Ships of any size operating with explosives;
→ Ships that require refueling with fuel oil and/or lubricant for their own consumption;
→ Ships over 180 meters long;
→ Depth: 9 to 12 meters.

Points	South Latitude	West Longitude
01	25º 29' 45"	048º 26' 15"
02	25º 30' 10'	048º 26' 15"
03	25º 30' 08"	048º 27' 12"
04	25º 29' 47"	048º 27' 12"

AREA 8

Designated for ships over 180 meters long.

→ **Depth:** 8 to 10 meters.

Points	South Latitude	West Longitude
01	25º 30' 03"	048º 23' 46"
02	25º 30' 18'	048º 24' 00"
03	25º 29' 45"	048º 24' 52"
04	25º 29' 27"	048º 24' 38"

5.3.3 Navigation aids

Ships proceeding from the N via the coastal route in daylight will catch sight of the peaks of the Cardoso Island, 890 meters high, and the Bom Abrigo Island. Near the coast, at a distance of approximately 15 to 20 miles, they will also catch sight of the Castilho and Figueira islands, and the Morro do Lopes (Lopes Hill), 420 meters high. When approaching the position indicated on the chart 1820 as viewpoint (25º 36' S – 048º 01' W), they will be able to identify, with some accuracy, the outstanding points of the Paranaguá bar, which will assume the appearance of small islands in the horizon. These points are: Palmas Island, Morro da Fortaleza (Fortaleza Hill), at Ilha do Mel, Conchas lighthouse, Morro do Joaquim (Joaquim Hill), Morro da Cotinga (Cotinga Hill), Morro do Meio (Middle Hill), Morro Bento Alves (Bento Alves Hill), Morro Encantado (Enchanted Hill) and Galheta Island.

When approaching the port at night, the navigator proceeding from the N will catch sight of the Bom Abrigo lighthouse, and then, the Conchas lighthouse. Both of them are used for guiding the navigation to the surroundings of one of the holding buoys, either by using the Southeast or the Galheta channels.

When approaching Paranaguá in daylight, using the chart 1800, the navigator may catch a good view of Morro Grande (Big Hill) (25º 38' S – 048º 41' W), which is to the NW of Serra da Prata. When near the viewpoint of the chart 1821, the navigator will have the view already described, and may proceed in the same manner.

When approaching at night and if the navigation is correct, the navigator will first of all catch sight of the Conchas lighthouse.

Proceeding from the S, in daylight and with good visibility, the navigator will catch sight of Morro Grande, and will have the same view as mentioned above. When navigating at night or along the coast, the lighthouse on Paz Island, followed by the Conchas lighthouse will be available to the navigator.

5.3.4 Port limits

The official port limits are the coordinates: latitude 25º 29' 45" S and 25º 30' 12" S; longitude 048º 32' 06" W and 048º 30' 00" W.

5.3.5 Pilotage

Is mandatory for foreign ships, tankers, propane carriers and ships carrying explosive cargoes under the Brazilian flag, of any size or gross tonnage.

The pilot embarks at the location indicated on the chart 1821, approaching the port by the Southeast or Galheta channels, and guiding the ship to the mooring berth.

The pilot embarkation point is near buoy 1, regardless of the channel used, whether the Southeast or Galheta. The circular maritime area with a 1-mile radius, indicated on the chart 1821, with 1-sec white-flashing luminous buoy, is the pilots' waiting area for.

The request for a pilot may be made by the navigation company's agent, at least three hours in advance, when the estimated entrance or exit time of the ship shall be specified. Ships approaching Paranaguá shall contact the Paranaguá-Rádio, channel 16 VHF, two hours before reaching the pilots' waiting area. The Associação de Práticos (Pilots' Association) permanently monitors channel 16 VHF, and traffic on channels 12 and 14 VHF.

The main restriction to embarking the pilots refers to the sea conditions, which at the Galheta channel, with wind over 6 (Beaufort scale), makes it difficult for the pilot boats to pass.

In strong winds (7 in the Beaufort scale, speed between 28-33 knots), the Paranaguá bar breaks strongly, and the pilots do not go to the ships; thus, using the channels is not recommended.

So that the ship can enter the channel, the present maximum draft is 41 feet.

Each captain is solely responsible for the maneuvers, and he must provide the pilot with all information on any existing peculiarity, specific conditions or difficulties, such as: engine or boiler problems, problems or damage to navigation aid instruments, mooring lines or any element that may offer risks for mooring, rope release, loading/discharging the ship.

5.3.7 Tugs and port services

At least one tug shall be used, with ropes fast during the entire maneuver.

There are companies providing maritime towing services, registered by the Administration of the Ports of Paranaguá and Antonina, and each one must keep at least

one tug operating in the Organized Port's area. Only registered tugs may operate in this area. The tug companies shall inform Appa about the vessels out of operation, and the estimated term for their return to towing activities.

The recommended number of tugs is defined in the rules and procedures for the Harbor Masters (NPCP), and will depend on the gross tonnage of the ships and the static traction force of the tugs. At Appa's discretion, the recommended number may be changed, bearing in mind the sophistication of the ship to be towed and the berthing risks (refer to the Appendix E).

The maneuvers requiring assistance from tugs will be monitored by Appa, under request from the ship's owner or agent. No towing maneuver may be carried out without Appa's knowledge, who will determine the priorities.

Other maneuvers with tugs considered independent shall be requested directly to the companies providing this service at Paranaguá, by informing Appa.

The most powerful tugs will have priority over the others in maneuvers with large ships.

At the Port of Paranaguá, there are support boats for the maneuvers, which are requested by the pilot. There are companies who provide this service.

The berthing and mooring operations are realized by the Port Administration (Appa), under the pilot's guidance. The Terminal also has a specific agreement with Appa regarding this subject, and the work is carried out 24 hours a day.

The berthing and mooring maneuvers are monitored by video cameras installed on the pier.

5.3.8 Risks to navigation

As mentioned in the item 5.3.1, concerning the approach and access, the most important precaution for the navigator approaching the Paranaguá bar is to keep the vessel away from the banks, near the Galheta channel entrance. To do so, the most important measure is to always try to keep the ship outside the 10-m isobathic line indicated on the charts.

When navigating in the channels, the maximum speed at the bottom should not exceed 10 knots. Where there are support vessels carrying out beaconing, dredging, sub aquatic and hydrographic services in the channel, then the maximum speed at the bottom must be only 5 knots.

The navigator must pay attention to the following hazards at large, when approaching, as indicated in the South Coast Route:

Casco soçobrado – Sunken wreck bearing 137º and lying 2.1 miles from the Conchas lighthouse, dangerous to navigation.

Casco soçobrado – Sunken wreck bearing 135º and lying 1.8 miles from the Conchas lighthouse, dangerous to navigation and beacon signaled by luminous buoy.

Alto-fundo – Submerged rocky ledge, confined within the bearings 100° and 129° from the Conchas lighthouse and lying at 1.5 to 2,5 miles, sounding from 3.9 to 5 meters

Alto-Fundo – Submerged rocky ledge, bearing 085° and lying 1.1 miles from the Conchas lighthouse, sounding 4.5 meters.

Alto-Fundo – Submerged stone ledge, bearing 030° and lying 0.4 miles from the Conchas lighthouse, sounding 7.4 meters.

Casco soçobrado – Sunken wreck bearing 241º from the tower No. 1 (Palmas Island), at a distance of 0.8 miles, dangerous to navigation and beacon signaled by luminous buoy.

Alto-Fundo – Submerged stone ledge, bearing 279° from the tower No. 1 (Palmas Island), and at a distance of 0.8 miles, sounding 6.9 meters.

Pedras Ipanema – Rocks bearing 290° and lying 0.9 miles from the tower No. 1 (Palmas Islands), sounding 3 meters.

Parcel e banco Ipanema do Norte – Ledge of rocks bearing 305° and lying 0.8 miles from the tower No. 1 (Palmas Islands), with some rocks that are always exposed. Above the ledge the sounding is 2.8 meters. It is beacon signaled with red blind buoy.

Pedras da Baleia – Rocks bearing 298° and lying 1.2 miles from the lighthouse at Palmas Island, sounding 1.5 meters. They are beacon signaled with luminous buoy.

Pedras do Portão – Rocks bearing 301° and lying 1.2 miles from the lighthouse at Palmas Island, sounding 3.7 meters. They are beacon signaled with red blind buoy.

Pedras do Norte – Rocks bearing 320° and lying 1.1 miles from the lighthouse at Palmas Island (No. 1), with exposed rocks.

Pedra Alagada – Rocks bearing 320° and lying 1.3 miles from the lighthouse at Palmas Island (No. 1), sounding 2.9 meters.

Lajes Itacolomis e lajes do Cação – Rocks bearing 349° and lying 1 mile from the lighthouse at Palmas Island (No. 1), sounding 2.2 and 5.1 meters. They are beacon signaled.

Pedras Pescadas – Rocks bearing 349° and lying 1.4 miles from the lighthouse at Palmas Island (No. 1), sounding 3.2 meters.

Banco dos Ciganos – Large bank located at the entrance to the North bar of Paranaguá, demarcated by the boundaries and distances below:

→ East Limit: bearing 160° from the Ponta Inácio Dias, and at a distance of 2.85 miles

→ West Limit: bearing 160° from the Ponta Inácio Dias, and at a distance of 2.85 miles

→ South Limit: bearing 085° from the Conchas lighthouse, and at a distance of 3.5 miles

On this bank, where there are breakers with fresh winds, the minimal sounding is 3.2 meters.

Banco do Superagui – Large bank lying to the south of the Superagui Island, whose Southern boundary bears 172°and at a distance of 2 miles from the Ponta Inacio Dias. Large areas become submerged and exposed.

Casco soçobrado – Sunken wreck with visible mast bearing 190° and at a distance of 1.2 miles from the Ponta Inácio Dias.

Banco da Galheta – Large bank that includes the Galheta Island, close to the South bar of Paranaguá; its East boundary bears 172° and lies 3.8 miles from the Conchas lighthouse. On this bank, the sea breaks with fresh winds. Large areas become exposed and submerged with the tides.

Alto-Fundo – Submerged rocky ledge, bearing 195° and lying 2.3 miles from the Ponta Inácio Dias, sounding 5 meters.

Alto-Fundo – Submerged rocky ledge, bearing 189° and lying 2.55 miles from the Ponta Inácio Dias, sounding 4.8 meters.

Alto-Fundo – Submerged rocky ledge, bearing 194° and lying 3.2 miles from the Ponta Inácio Dias, sounding 4.8 meters.

5.3.9 General restrictions

5.3.9.1 It is obligatory to use tugs when maneuvering at the Terminal pier. The Appendix E must be used as a reference as to the minimum number of tugs to be employed.

5.3.9.2 During berthing maneuvers at the internal berth of the Terminal pier, a minimum distance of 10 meters must be maintained from the ship's bow to the pipeline bridge.

5.3.9.3 Berthing and unberthing at the internal berth must occur in the period covering one hour before the flood tide slack water and one hour after the falling tide

begins, that is, using the water depth resulting from the increase in tidal amplitude, the local depth and the low intensity of the tidal current (less than 0.4 knot), still observed. The best period recommended, both for approaching and berthing and for unberthing, is one hour before the flood tide.

5.3.9.4 Ships berthed starboard side in the internal berth of the Terminal pier may project the stern beyond the end of the pier when authorized by the port authority. When berthed in the external berth, the ships may project their bow or stern beyond the end of the pier, when berthed to port or starboard, respectively, provided they have authority from the port authority.

5.3.9.5 When suggested by the pilotage, and under unfavorable meteorological or sea conditions, the port access bar may be temporarily closed by the maritime authority.

5.3.9.6 The factors that condition the access to the critical area of the Galheta channel, covering the area from the alignment of the pair of luminous buoys 1 and 2 to the pair of buoys 7-8, are provided in Appendix F.

5.3.9.7 Brazilian laws are very severe where contraband is concerned. Thus, the captains must instruct their crews so that they avoid taking ashore or trading cigarettes, cigars, tobacco, alcoholic beverages, souvenirs and other imported items. Before the arrival, these items must be stored in the customs storeroom (sealed), which will be under the responsibility of the captain during the entire laytime at the Terminal. Under no circumstances, will any commercial transaction be allowed, either among the employees or any other persons.

5.3.9.8 Brazilian laws are very severe where the water pollution along the coast is concerned. It is forbidden to throw any kind of material, debris, garbage, oil or polluting substance into the waters of the Port of Paranaguá. Heavy penalties will be imposed by the port authorities on those who infringe this law, including being arrested as provided for under the law. The ships' captains are in charge of ensuring that no oil or contaminated water will be pumped or spilt from their ships.

5.3.9.9 While the ships remain anchored or berthed in port, garbage must be deposited into the proper containers with lids, and must be kept like this until collected by the company providing this service. It is forbidden to leave any garbage container hanging over the edge of the ship or near to it, where there is a risk of it falling into the sea.

5.3.9.10 Discharging any kind of sewage into the sea is prohibited during the ship's stay in port. Chemical products, oil or polluting substances may be removed using an oil barge or truck, provided this job is executed by a legally qualified company.

5.3.9.11 Ship´s captains must inform the Harbor Master and port authorities about spillages of any polluting substance in the Organized Port area. Pollution is defined as a crime under Law 6938, of August 31, 1981, which rules on the Brazil's environmental policy, and establishes penalties to be applied both to those that pollute and the authority that fails to prevent it from happening.

5.3.9.12 The Brazilian flag shall be hoisted to the top of the forward mast when the ship is entering or leaving the port, from 08:00 a.m. to sunset. The ships approaching Brazilian ports must equip themselves in advance with this flag. However, should this not be possible, the flag must be obtained via the agent.

5.3.9.13 According to international practice, when approaching the coast, the ships must fly the Quebec flag and keep it hoisted until the port authorities grant release. At night, that is, from the sunset to the break of dawn, the quarantine will be signaled by a red light on top of the white light. During the entire laytime, oil tankers must keep the Bravo flag hoisted at the top of the mast in daylight, and a red light at night.

5.3.9.14 It is forbidden to carry out any work involving the release of anchor chains on ships berthed in the oil pier, or any other movement of the anchor chain capable of producing sparks.

5.3.9.15 Passengers may disembark provided their situation is legal and they have their passports.

5.3.9.16 While berthed at the oil pier of the Marine Terminal of Paranaguá, the ships must keep their engines ready to run, in order to leave the pier at full power as soon as they are notified to do that. The ship must be compensating the compass at all times. At no time should the propulsion units be switched off.

5.3.9.17 Visits are not permitted to a ship operating at the Terminal. Entrance aboard is restricted to the company's employees, port authorities, inspectors and technicians whose duties oblige them to be aboard. However, the relatives of the crew members may be authorized by the captain in mutual agreement with the Terminal.

5.3.9.18 Smoking is prohibited on the ships berthed, except into the compartments considered as approved for this purpose by the ship and the Terminal, and/or certified as being safe for this purpose. The ship's ashtrays must be of the safety type, or contain water inside.

5.3.9.19 During the ship's operation, only gas-proof electric lighting will be permitted on deck.

5.3.9.20 Portable flashlights must be approved and certified as safe for operating in hazardous locations.

5.3.9.21 Only shielded radio transceivers may be used on the deck during loading/discharging operations.

5.3.9.22 All doors and portholes of the inhabitable midship compartments must remain closed during the loading/discharging operations. Maximum care must be taken to prevent gas from entering in these compartments.

5.3.9.23 All existing doors, portholes and openings in the inhabitable stern compartments facing the deck must be kept closed. Openings and doors leeward from the operating deck, which could allow gases into the ship must be kept closed. Should the Terminal representative so request, all his warnings and suggestions must be complied with, and all the precautionary measures must be taken so as to prevent the hydrocarbon gases from entering the usually non-hazardous areas of the ships where there might be ignition sources.

5.3.9.24 Fans and pipes must be properly trimmed in relation to the tank vents and the prevailing wind, so as not to catch any flammable vapors.

5.3.9.25 Any atmospheric air intakes that might pick up oil vapors must be kept closed. All openings at a distance of up to 25 meters (82 feet), vertically or horizontally, from any cargo tank openings or vents must be kept closed.

5.3.9.26 All individual air conditioning equipment, installed on windows, will be turned off when the ship is operating with products that have a low flash point.

5.3.9.27 Before berthing the ship, all the tank covers, ullage ports and inspection covers must be closed and locked, except when the captain has a degassing certificate and the entire onboard ballast is clean. During the operation, the cargo and fuel tank openings will be used according to the tank relief safety system. The same applies to the permanent ballast tanks.

5.3.9.28 Except when specifically established in writing between the captain and the representative of the Terminal manager, all ullage ports or inspection covers will be kept closed during the period of the operation, except when used for their own designated purposes, that is, for measuring the ullage, so as to obtain samples, temperatures or to monitor the tanks. Whether open or shut, all ullage ports must be protected by clean fire-retardant screens of the approved type and in perfect condition.

5.3.9.29 The loading flow must be controlled in order to prevent excessive pressure inside the cargo tanks.

5.3.9.30 The fire protection mounted on the relief mast will be used according to the instructions of the tank venting system.

5.3.9.31 All the ships equipped with an Inert Gas System (SGI) must prove that the oxygen content in all the cargo tanks (including those with clean or dirty ballast) has been reduced to 8% or less per volume, before the discharging, loading, ballasting and deballasting operations.

5.3.9.32 The atmosphere of the cargo tanks rendered inert must not become flammable during the loading, discharging, ballasting and deballasting operations. When the Inert Gas System fails in terms of the quality or quantity of the inert gas produced, or presents difficulties in maintaining positive pressure inside the cargo tanks during the loading, discharging, ballasting and deballasting operations, such operation must be interrupted immediately before informing the service commander or the representative of the Terminal. Restarting the operations will be only permitted when the Inert Gas System is in perfect operating conditions.

5.3.9.33 It is forbidden to degas tanks or render them inert while the ship is berthed at the oil tanker pier of the Terminal.

5.3.9.34 Repairs or maintenance work of any kind may not be carried out if they involve the risk of producing sparks or other ignition means, while the ship is moored at the pier.

5.3.9.35 When approaching or leaving the NT, a pilot's ladder of the rope-ladder type must be ready for immediate use, with sufficient length to reach the boat. At night, the ladder must be illuminated so that the boat can approach and the pilot can embark or disembark safely. Life buoy with a1-fathom rope must be to hand, and a towrope for small boats must be extended leewards.

5.3.9.36 When berthed at night, the hull opposite the docks must be illuminated for safety.

5.4 Maneuvers Area – Evolution Basin

This is the area designated for ship maneuvers, with approximately 700 meters wide along its entire extension, from the oil pier and the Port of Paranaguá docks. This maneuvers area is limited to the north by the 10-m isobathic line to the west of the Pedra de Palangana, and has variable depths.

Transshipment operations are carried out with the vessels berthed, by using the interconnection alignments of the Terminal berths.

5.4.1 Navigational and berthing aids

The Terminal operator assists the ship when it is berthing so as to position it in such a way that the loading arm and hoses can be connected.

5.4.2 Controlling the depths

The access of ships to the main pier is limited by their length (LOA) and draft. At the external berth of the main pier, known as PP-1, the maximum LOA is 200 meters, and the maximum draft allowed for the ship is 11.58 meters (38 feet). At PP-2, or the internal berth, the maximum permitted LOA for the ship is 190 meters, and the maximum draft, 10.06 meters (33 feet).

5.4.3 Maximum dimensions

The access of ships to the main pier is limited by their length (LOA) and draft, as described in the item 5.4.2.

5.5 Environmental Factors

There are no meteorological stations in the area. In general, the winds have a regular cycle during the year, following the coastal wind regime. Relative air humidity is around 80%.

Local temperatures during the year range from 15º C in June/July to 30º C in January/February.

Meteorological Bulletins and Warnings to Navigators are transmitted by the PWZ and PR radio stations. For more details, refer to the DAN's publication "Lista de Auxílio Rádio DH 8-8".

Meteorological information may be obtained on the web site of the Centro de Hidrografia da Marinha: www.dhn.mar.mil.br/chm/meteo/prev/meteoro/boletim.htm.

5.5.1 Prevailing winds

The predominant wind in the region is from the SW. From January to March, winds blow from NE and SW; from April to July, from W and SW; from July to September, from S and SE; and from October to December, from E, NE and SW. The wind intensity varies from weak to moderate.

5.5.2 Waves and swells

Near the mouth of the bar, the wave regime depends on local winds. The main restriction on embarking pilots refers to the sea conditions, which at the Galheta channel, with wind above 4 (Beaufort scale), makes it difficult for the pilot boats to pass.

5.5.3 Rainfall

The heaviest rainfall in the region occurs at night, and sometimes lasts all night. These rains are more frequent during spring and summer seasons. Historically, there is no incidence of snowfall in the region.

5.5.4 Lightning storms

Lightning storms are more frequent during the spring and summer seasons, in the afternoon and evening periods. The elements contributing to their occurrence are the cold fronts and high temperatures during the day.

5.5.5 Visibility

Visibility is generally good during summer, and may exceed 4 miles. It may be reduced by the mists during the autumn and spring seasons, as well as by occasional strong hazes.

5.5.6 Tides and currents

Tides at the Paranaguá Bay are of the semidiurnal type, and present variations with the additional influence caused by meteorological effects, both in the port and at the bar. There is a difference of approximately one hour between the tide at the port and bar, occurring one hour later at the bar. The table of tides draws attention this fact, and informs that there may be exceptions to the rules included in those tables as far the tidal forecasts on the south coast of Brazil are concerned.

At present, APPA and the Centro de Estudos do Mar (CEM) are developing studies on measuring currents and tides, taking simultaneous measurements in the Galheta channel and the port, so as to arrive at the direction and intensity values of the current at the critical points in the channel, as well as the depth at any given time, over the reduction level stipulated by the DHN. It is important to know the extent of the tide anywhere and at any time, as this parameter has a direct influence on the on maximum draft to be defined by the Port Administration.

The following aspects must be observed for the Paranaguá Bay:

- → At the bar of the Galheta channel, the current reaches 4 knots during syzygy tides.
- → The average height of the syzygy tides is 1.80 meters, and for quarter tides, 0.80 meters;
- → During the syzygy tides, in the port, the flood and falling currents reach 1.3 to 2.4 knots, and during the quarter tides, approximately 1.0 knot.
- → The average water density at Paranaguá Bay, considered as brackish water, is 1.015 g/cm^3 during low tides, and 1.025 g/cm^3 during flood tides.


BR

6

Description of the Terminal

6.1 General Description

Founded on February 1, 1977 by Petrobras, the Marine Terminal of Paranaguá has a physical area of 182,841 square meters. The entire area is used for operating purposes, included within a perimeter of around 1,800 meters, operating uninterruptedly, and able to transfer products 24 hours a day.

One of the major functions of the Terminal is to act as importer and exporter of oil by-products: LPG, petrochemical naphtha, aviation kerosene, diesel, fuel oil, gasoline, gasoil, alcohol and others. The Terminal is interconnected to the Araucaria Refinery via a 12 inch oil pipeline extending for 97.6 km, which operates in both directions. At the storage facilities, around 189,825 cubic meters of oil by-products can be stored, and there is a pressurized LPG storage facility comprising three spheres with an operating capacity of 2,546 cubic meters each.

The Terminal has two distinct mooring berths: the main pier, also denominated the Flammables Dock, and the Secondary, also known as Barges Pier. Both of them are operated by Transpetro, but are an integral part of the port complex, or Organized Port of Paranaguá. These two piers are located, one to the east and the other to the west, of a central raised access platform, where a third pier, called the Cattalini Pier, originates and extends in a NW direction, but is not an integral part of the facilities at the Marine Terminal of Paranaguá, and therefore is not operated by Transpetro nor included in this port information.

The main pier, with its external and internal mooring berths, is used both for loading and discharging light and dark oil by-products, in addition to methanol. The secondary pier is only used for supplying the tugs or loading the barges.

The access of ships is not limited by their size, but by their length (LOA) and draft. At the external berth of the main pier, known as PP-1, the maximum LOA is 200 meters, and the maximum draft permitted for the ship is 11.58 meters (38 feet). At PP-2, or the internal berth, the maximum permitted LOA for the ship is 190 meters, and the maximum draft, 10.06 meters (33 feet).

The Terminal operates uninterruptedly, and is able to transfer products 24 hours a day. However, the berthing/unberthing maneuvers at the internal berth may only be carried out during low-intensity falling tides (less than 0.4 knots).

6.2 Physical Details

See table on the next page.

Note: The secondary pier is only used for operations involving loading barges and refueling tugs.

6.3 Berthing and Mooring

Berthing and mooring are carried out by the port Administration (Appa), under the pilot's guidance, according to the maneuver routine defined by the pilotage for the internal and external berths. The Terminal has a specific agreement with Appa for this purpose.

The berthing and mooring maneuvers are monitored by video cameras installed on the main pier.

Note 1: For ships with a gross tonnage in excess of 2,000 DWT, the use of pilotage services is mandatory. The pilotage will be optional for ships with gross tonnage below 2,000 DWT, provided they are under the command of a Brazilian nautical officer or cabotage master.

Note 2: The recommended number of tugs is defined in the rules and procedures for the Harbor Masters (NPCP), and will depend on the gross tonnage of the ships and the static traction force of the tugs. At Appa's discretion, and having consulted the pilotage, the recommended number may be altered bearing in mind the sophistication of the ship to be towed and the berthing risks (refer to the Appendix E).

Note 3: When the mooring positioning and arrangement for the ship in terms of the pier bollards are favorable, we recommend the installation of breast lines, especially where forecasts of strong winds are confirmed.

Physical Details

Berth No.	Type	Berth lenght (meters)	Depth (meters)	Tide (meters)		Beam (max.)	Ship lenght (max.)	Products Moved	DWT (max.)	Note
				Syzygy	Dry					
PP-1	Píer L	196	11.58	1.80	0.80	32	200	Gasoline, diesel, kerosene, methanol, MTBE, alcohol, naphtha, fuel oil, bunker, LPG	110,000	–
PP-2	Píer L	186	10.06	1.80	0.80	25	190	Gasoline, diesel, kerosene, methanol, MTBE, alcohol, naphtha, fuel oil, bunker, LPG	80,000	–
PS	Píer L	100	5.80	1.80	0.80	–	–	Bunker	–	–

Berthing and Mooring Arrangements

Berth No.	Requires Pilot for Maneuvering	Ship Size example: DWT (max.)	No. and DWT of Tugs				Approach (Max.)		Mooring Points		Mooring Lines (bow and stern)		
			Berthing		Unberthing		Speed (cm/s)	Angle	Bollards	Hooks	Line	Breast Line	Spring Line
			No.	DWT	No.	DWT							
PP-1	Yes	110,000	2 to 3	58.0	2 to 3	58.0	20	10°	5	–	4 bow / stern	Note 3	2 bow and 2 stern
PP-2	Yes	80,000	2	53.0	2	53.0	20	10°	5	–	4 bow/ stern	Note 3	2 bow/ stern
PS	No	Raft/tugs	–	–	–	–	20	–	2	–	2 bow/ stern	–	–

Note 4: Add a spring line opposing west wind and ebb tide in the External ¬ PP1 and Internal ¬ PP2 piers.

6.4 Berth Features for Loading, Discharging and Bunker

The main pier has two mooring berths, external and internal. It is equipped for loading and discharging light products, such as gasoline, diesel, naphtha, MTBE, methanol, LPG and QAV, and dark products, such as marine fuel, fuel oil and others (see Appendices C and D).

PP-1, which is the external berth of the main pier, is 196 meters long and of a depth suitable for accommodating ships with maximum draft of 11.58 meters (38 feet), and LOA of 200 meters.

PP-2, which is the internal berth of the main pier, is 186 meters long and of a depth suitable for accommodating ships with maximum draft of 10.06 meters (33 feet), and LOA of 190 meters.

On the main pier there are five mooring breast lines for each berth, at a distance of 46 meters from one another.

The main pier is equipped with three loading/discharging arms, which are used by the ships tied up at the external berth: two of them are 10" in diameter, and handle light-colored products, and the third one, a 12" in diameter, handles dark products.

The loading flow rate for light products is 700 to 1,800 m^3/hr.

The discharge flow rate is 1,000 m^3/hr, or limited to a pressure of 10.5 kgf/cm^2 in each loading arm or hose.

The main pier also has hoses for dark products (8" and 6"), which can operate with ships berthed at the external or internal berths, with a flow rate of 275 to 900 m^3/hr, and hoses for handling LPG (06"), liquid phase, with flow rate limited by a pressure of 15.0 kgf/cm^2, and 04" for vapor return.

The secondary pier is 100 meters long and of a depth suitable for accommodating barges with a maximum draft of 19 feet, which are loaded with MGO (marine gas oil) and MF (marine fuel), and which supply the ships operating in the Port of Paranaguá.

The mooring berths are equipped with fire combat and sea pollution combat systems.

Appendix C provides a simplified scheme of arms, hoses and lines for loading and discharging products.

Appendix D shows the typical loading and discharging flows, per product type handled at the Terminal. The flow rates may be altered according to the combination of lines, hoses and arms at the Terminal, and the ship's capacity.

Berth No.	Products	Number and Diameter of the arms	Receives or Sends	Temperature		Flow (max.) m^3/h	Pressure (max.) kgf/cm^2	Notes
				Min.	Max.			
PP-1	Light: gasoline, naphtha, oil diesel	2 x 10" ANSI 150 PSI	Receives and sends	20	40	1,000	10.5	Flow rate per discharge arm
						1,250	10.5	Flow rate per discharge arm
	Dark: fuel oil	1 x 12" ANSI 150 PSI	Receives and sends	20	70	1,000	10.5	Flow rate per discharge arm
						1,250	10.5	Flow rate per discharge arm
	Dark: fuel oil	1 x 08" 150 PSI	Receives and sends	15	70	650	10.5	Flow rate per loading hose
						1,000	10.5	Flow rate per discharge hose
	Ballast	1 x 08" 150 PSI	Receives	15	40	1,000	10.5	Flow rate per discharge hose
PP-2	Light: Gasoline, naphtha, oil diesel	2 x 08" 150 PSI	Receives and sends	15	40	700	10.5	Flow rate per loading hose
						1,000	10.5	Flow rate per discharge hose
	Metanol	1 x 08" 150 PSI	Receives	15	40	1,000	10.5	Flow rate per discharge hose
	MTBE	1 x 08" 150 PSI	Sends	15	40	700	10.5	Flow rate per loading hose
	LPG	1 x 06" 300 PSI	Receives and sends	+5	40	–	15.0	Flow rate limited by the maximum pressure of 15.0 kgf/cm^2
	MFs	1 x 06" 150 PSI	Sends	15	70	450	10.5	Flow rate per bunker hose
	MGO	1 x 04" 150 PSI	Sends	15	40	100	10.5	Flow rate per bunker hose

6.5 Management and Control

In the Control Room there is an operator responsible for controlling all the Terminal operations via a supervision system. There is one room in the pier, where the operators of that section prepare the documentation, handle the communications and monitor the berthing and positioning of ships.

Communications with the ships are carried out via VHF radios, on a maritime frequency previously agreed and registered. A secondary means, using onshore VHF radio, is agreed to in case the main system fails.

6.6 Major Risks

The major risks associated with ships spending laytime in the Tepar berths are:

→ Lightning storms; more frequent during the spring and summer seasons, in the afternoon and evening periods. The elements contributing to their occurrence are the cold fronts and high temperatures during the day.

→ Movement apart of the external (PP-1) and internal (PP-2) berths due to the occurrence of sudden squalls, more frequent during the spring and summer seasons, in the afternoon and evening periods.

→ When exposed due to the absence of a ship at the external berth (PP-1), the ship tied up at the internal berth (PP-2) is more vulnerable due to the position of the berth, when there is incidence of strong current in the west-east direction, with the risk of the bow moving away from the pier defenses, when berthed to starboard.

These risks require greater attention from the ships' crews where the mooring lines are concerned.

7

Procedures

7.1 Before Arrival

Ships approaching the oil tankers Terminal must inform the ETA, via the agent, at least 24 hours in advance, in order for them to be included in the schedule. The ETA information must specify whether the time informed is local or UTC. The local time is three hours behind the Greenwich meridian. From October to February, it is usual to adopt daylight saving time, and the time difference goes to two hours behind Greenwich.

The NOR (Notice of Operational Readiness) must be issued by the ship in the usual anchoring location at the port, when the ship is, under all the aspects, ready to operate.

The berthing schedules in the oil pier of the Marine Terminal of Paranaguá are regulated by Appa.

The ships heading to the oil pier at the Marine Terminal of Paranaguá must have the Free Practice (Ship Released by the Port Health and Port Authorities). The ships will be visited in the anchorage area by Port Health, Customs and Maritime Police representatives. The ship's agent must take steps to this end.

Occasionally, the visit may occur at the Terminal oil pier. However, before berthing in the Port of Paranaguá, all the ships must send a specific message to the Port Health in order to obtain the Free Practice, thus certifying their good sanitary status.

Ships arriving from a foreign port, even where they have already called at a Brazilian port, will be inspected by the Customs Service, and the agent must request this inspection, providing all the required details. They also are subject to a visit from the Maritime Police after receiving the Free Practice, in order to check the papers or passports of the crew and passengers.

On-board repairs and washing the ship's cargo tank should preferably be carried out at the anchorage area. To carry out these services with the ship berthed, prior authorization from the Terminal will be necessary.

7.2 Arrival

When berthed, and after the operator has undertaken the safety inspection based on the Operational Safety Checklist (Isgott, Appendix A), the ship will not be authorized by the Terminal to start its operations if there are pending issues not solved by the crew.

The port authorities are brought into play by the ships' agents according to the arrival and berthing schedule.

A ship berthing at the Terminal must, via its agent, pay all port fees and charges stipulated by the Superintendence of the Port of Paranaguá, according to the rules established and in force, as well as getting to know all the administrative rules and norms issued by the Port Authority Council (CAP), which is the normative body for fostering and deliberating on the matters concerning the workings of the Organized Port operation.

Bunkering requests must be forwarded to UN-Bunker via ship's agent. The Terminal may supply bunker to the ships berthed at the pier directly via oil pipeline, by pumping MGO (marine gasoil) via 4"-diameter hoses and MF (marine fuel) via 6"-diameter hoses, at flow rates of 100 m^3/hr and 450 m^3/hr, respectively, or via barge for the ships anchored offshore. The Terminal has a mixing unit for producing MF with a viscosity starting from 30 cst.

The water supply requests must be forwarded by the ship's agent to Appa, which is responsible for supplying the ships berthed in the pier. The main pier has two connection points for supplying potable water, with flow rates of up to 6 tm/hr, limited to a maximum of 100 tm. In addition, there are companies that supply water via barges to the ships anchored offshore.

The supply of lubricants is via direct contact between the ship and Distribuidora BR.

The key addresses and telephones are listed on the next page:

Petrobras Transporte S.A. – Transpetro
Av. Cel. Santa Rita, s/nº
ZIP Code: 83221-340 – Paranaguá – Paraná
Phone: (55 41) 3420-4101
Fax: (55 41) 3420-4112

Harbor Master
Rua Benjamin Constant,771
ZIP Code: 83203-150 – Paranaguá – Paraná
Phone: (55 41) 3422-3033
E-mail: mailto:secom@cppr.mar.mil.brr
Site: http://www.cppr.mar.mil.br/

Ministério da Saúde (Ministry of Health)
Rua Francisco Machado,1841
ZIP Code: 83204-150 – Paranaguá – Paraná
Phone: (55 41) 3423-1300

Receita Federal (Internal Revenue Service)
Av. Coronel José Lobo, 2300
ZIP Code: 83221-380 – Paranaguá – Paraná
Phone: (55 41) 3423-1277
Site: www.receita.fazenda.gov.br

Sindicato dos Práticos do Estado do Paraná – Pilotage
Rua Benjamin Constant,111
ZIP Code: 83203-450 – Paranaguá – Paraná
Phone: (55 41) 3422-4711
E-mail: paguapilolts@lol.com.br

Appa – Administração dos Portos de Paranaguá e Antonina
Rua Antonio Pereira, 161
ZIP Code: 83221-030 – Paranaguá – Paraná
Tel.: (55 41) 3420-1100
E-mail: appasupe@pr.gov.br

Mar Oil Apoio Marítimo Ltda. – Agents
Av. Coronel Santa Rita – Inflamável (Rocio) (Petrobras)
ZIP Code: 83221- 340 – Paranaguá – Paraná
Phone: (55 41) 3422-4291
Fax: (55 41) 3422-8060
Telex: 3414-350
E-mail: maroilparanagua@lol.com.br

Federal Police
Av. Manoel Bonifácio,308
ZIP Code: 83203-300 – Paranaguá – PR
Phone: (55 41) 3422-2033 (Paranaguá) and (55 41) 3362-2313 (Curitiba)
Site: www.dps.gov.br

Hospital Santa Casa de Misericórdia
Rua dos Expedicionários, 269
Paranaguá – PR
Phone: (55 41) 3423-1422

Hospital Paranaguá
Rua Nestor Vitor, 222
Paranaguá – PR
Phone: (55 41) 3423-3466

7.3 Berthing

7.3.1 Procedures before mooring

A crane or derrick (minimum 5 tonnes) ready for use must be available to assist in connecting the hoses to the onboard manifold.

Windlasses, winches, brakes and jaws in perfect conditions of use must be available with the aim of mooring efficiency.

Towing ropes, messengers, guide-ropes and lines must be ready for use on the bow and stern.

All the mooring equipment used at the Terminal comply with the Ocimf directives.

7.3.2 Mooring work

The mooring work will be always carried out under the pilot's guidance (see Appendix B). However, the Terminal checks the directives defined in the Repar/Dimov 55129/97 agreement.

7.3.3 Mooring lines

Under no circumstances should the mooring lines be slack or loosened. If this happens, the ship could move along the pier or even move away from it. In this case, the operation will be interrupted for safety reasons and the hoses and arms will be disconnected.

7.3.4 Ship mooring system

the ships berthing to operate at the flammables pier of the Terminal must adopt the following criteria for mooring:

A – All mooring lines must be made of the same material, that is, fiber or wire. "Mixed" mooring lines are not permitted, that is, lines performing the same function, but manufactured with different materials. They must be of the same type, gauge and material.

B – The mooring lines must be arranged as symmetrically as possible in relation to the middle of the ship.

C – When employed, the breast lines must be set up as perpendicularly as possible to the longitudinal axis of the ship, and passed as much as possible forward and aft.

D – Spring lines must be oriented as much parallel as possible to the longitudinal axis of the ship.

E – When fiber tails are used on the wire lines, the tails must be of the same type, with gauge 25% greater than the minimum breaking load of the wire, according to Ocimf/Isgott, of the same material and length.

F – The mooring lines must be arranged in such a way that those executing the same functions have the same length, from the onboard winch (or bollard) to the bollard on the dock.

The schemes shown in the Appendix B indicate the mooring for the most unfavorable conditions, since they represent the acceptable condition limits.

The horizontal angle of the bow and stern lines relative to the direction of a breast line, which is perpendicular to the ship's longitudinal axis, should not exceed 45°.

The ships must be moored in the space corresponding to their own length, or as close to this as possible.

When the use of lines is inevitable, the number of mooring lines must be increased, due to the deficiency this arrangement causes in terms of restricting the ship movements.

7.3.5 Mooring work sequence

Approach the oil pier with enough drift for the ship to be controlled.

Pass the towing ropes through the aft central chain pipe of the tug that will assist the berthing maneuver and the mooring work, as per the pilot's instructions.

When the support boat is approaching the ship's hull, throw a line to this boat, which in turn will tie a messenger line on its end. On being transferred to the ship, this will serve as a guide for passing the first towrope to one of the bollards on the pier, as per the pilot's instructions.

The first towrope will be taken to the pier and selected according to the weather conditions, as per the pilot's instructions.

Sequentially, the remaining towropes will be fast to the bollards indicated by the pilot.

At least the scheme presented on Appendix B to moor the ship must be followed, that is, four bow and stern lines and two spring lines crossed at the foredeck of line extending amidships and two spring lines crossed by fore-to-aft, adding one spring line opposing west wind and ebb tide in External – PP1 and Internal – PP2 piers.

When possible, use also breast lines, as per the winds forecast.

7.3.6 Ship/shore access

The Tepar piers do not have ladders for accessing the ship. When disembarking, the crew that uses the Terminal facilities must wear closed leather shoes, long pants and sleeved shirts.

7.4 Before Cargo Transfer

The ship will be electrically earthed using an earth cable, connected to the Terminal structure.

Connecting and disconnecting the loading hoses and arms and the ship's manifolds is carried out by the Terminal's own team, assisted by the ship's derrick or crane.

At PP-1 and PP-2, there are two collecting tanks, one with 6 m^3 of capacity for light colored products, and other with 2 m^3 of capacity for dark products, which are used for draining the arms and hoses.

The ship must provide the loading manifold diameters to enable the loading arms and hoses to be connected.

An on-board representative must accompany the entire operation, and must be close to the ship's load manifold.

The Terminal will put one inspector onboard the ship to carry out a visual inspection on the deck and around the vessel.

The onboard measurements will be carried out by the ship's personnel and inspected by the Terminal representatives or other inspectors. The material used must be duly earthed, and the measurement instruments must be explosion-proof.

The operation can only start after the initial letter has been filled in by the shore and onboard representatives.

The Ship/Shore Safety Checklist (Appendix A, Isgott) is checked and filled in by the Terminal operator, during the initial release of the ship.

It is forbidden to carry out steam cleaning or to clean boiler piping while the ship is berthed. Precautions must be taken so that sparks do not escape from the smokestack. The non-compliance with this regulation will result in one or more of the sanctions below:

→ Immediate interruption of the operations;

→ A fine being applied by the competent authorities;

→ Compulsory ship unberthing from the pier;

→ Communication of the infraction to the ship owners;

→ The ship being held responsible for the fines applied, demurrage and all other related expenses resulting from this fact.

The prohibition on non-authorized small boats remaining alongside or near berthed ships must be strictly observed. Only the authorized vessels can remain in the vicinity or alongside, provided that they meet all safety conditions. Any violation of this rule shall be communicated to the competent authority.

The berthed ships should not start their propeller(s) while connected to the Terminal. The jacking gear may be used, once the Terminal operator has been duly notified, however, the propeller must be turned slowly in order to ensure absolute safety. Ships will be held responsible for any damages resulting from these procedures.

7.5 Cargo Transfer

Loading and discharging are effected via ducts designated for each product type, and prepared by the shift operator at the Terminal, after the connections have been closely inspected.

Ballast and deballast networks and tanks must be designated for this purpose only, and remain isolated from other pipes aboard. The water ballast for discharge into the sea must be totally free of oil, any oily residues or other substances that may pollute the seawater.

The Transpetro schedule, which interacts with the Petrobras logistics, provides tanks at the Terminal for receiving slop from the ships. When the ship needs to discharge slop in Paranaguá, the agent must inform the quantity to be discharged and its origin. The Terminal has a 5,410 m^3 tank for collecting dirty or oil-contaminated ballast. The discharges are undertaken using 8" hoses, at maximum flow rate of 1,000 m^3/hr and maximum pressure of 10.5 kgf/cm^2.

Any ship manifolds not operating must be duly flanged.

The discharge or transfer of the product will not commence without the permission and agreement between ship and Terminal.

The monitoring of pressures during cargo transfer is recorded by the representatives aboard and onshore at the ship's manifold, hour by hour. The flow rates on both sides of the operation are measured hour by hour, and compared between the parties, and according to the system used, there will be a limiting parameter for operational control. Any changes in the operating conditions must be communicated and documented between the parties. During the operation, it is expressly forbidden to close any valves that may cause counterpressure in the system.

The maximum pressure and flow rate established by the ship, according to its possibilities and features, must be maintained during the transfer, should its operating characteristics be less than the capacity of the Terminal.

The ship must always have someone keeping an eye on the manifold and mooring lines, so as to stay in contact with the Terminal team whenever required.

The fire-fighting material must be ready for any emergency, and the fire system must always be pressurized.

Keep the intake vapor circuit under pressure, with a view to stiffening or loosening the towropes, when required.

The manifolds shall be equipped with flanges of diameters previously agreed with the Terminal.

Flame-retardant screens must be kept on the ullage tube ports, cover portholes (view glasses) and similar openings.

Loading/discharging of a ship may be interrupted in case of fire or the outbreak of fire onboard, onshore, on another ship berthed or passing at a distance considered hazardous, or in any other situation putting the ship or Terminal at risk. The operation may be interrupted where the wind gusts over 40 knots and when there are intense atmospheric electrical discharges, at the discretion of the Terminal and/or ship.

The operating personnel at the Terminal are authorized to interrupt/suspend the operation in case of non compliance with any safety-related rules and standards globally accepted and adopted in the maritime oil transportation.

The ship's captain is entitled to interrupt the operation where has reason to believe that the operations onshore are not safe, provided he notifies the pier operators in advance.

The ships must keep their propulsion system in a state of readiness during the entire operation, so that they are able to cast off, clearing the berth, in case of any emergency. In addition to the engine being in a state of readiness, the ship must remain in a holding condition that enabling it to leave the pier as soon as it is notified.

In any emergency situation, Tepar will interrupt the on-going operations so that all available resources are focused on mitigating the disaster. The actions and contacts for every type of emergency are described in the LCP.

No repairs or maintenance works, where risk of sparks or other forms of ignition is involved or may be involved, may be carried out while the ship is berthed at the Terminal piers. In extreme cases, all the safety rules shall be complied with and fulfilled. Repairs that involve the pier facilities, or that imply any restriction on the ship during laytime, must be authorized in advance by the Terminal.

7.6 Cargo Measurement and Documentation

When the operation is finished, the draining of the loading arms/hoses used must commence. The Terminal operators will arrange for the used arms/hoses to be drained to a closed system on the pier. The ship representative shall arrange for drainage of the onboard stretch.

The final onboard measurements will be carried out by the ship's personnel and monitored by the Terminal representatives and other inspectors. The material used must be duly earthed, and the measuring instruments must be explosion-proof. The final release of the ship must occur after matching the quantities moved and complementing the laytime documentation.

7.7 Unberthing and Leaving Port

When the operation has finished, even when it has occurred at night, the loading hose or arm must be disconnected in accordance with the evaluation of the ship in mutual agreement with the Terminal.

Then, under instruction form the pilot, a towing rope will be passed from the ship to the tug. With the final release, the ship is ready to cast off and unberth under directions from the pilot.

According to the wind and current conditions, the pilot proceeds to determine the release of the various towropes, which will be hauled onboard, according to the criteria that he establishes.

When the last mooring towrope is removed, the unberthing maneuver starts, according to the criteria that the pilot establishes.

7.8 Compliance with the ISPS Code

The Marine Terminal of Paranaguá has implemented corporate safety protection measures applicable to ships and port facilities, in compliance with the requirements of the International Maritime Organization (IMO), by adopting the ISPS – International Ships and Port Facilities code.

When required, the ship may bring these protection measures into play, via the Port Facility Security Officer (PFSO), or VHF radio, channels 16 or 09.

The Marine Terminal of Paranaguá usually operates at safety level 01. For more details, the Port Facility Security Officer at the Terminal may be contacted, and he is qualified according to the requirements stipulated by the IMO,:

Phone: (55 41) 3422-7718 – Cell phone: (55 41) 9971-0783

8

Organization of the Port and Anchorage Area

8.1 Port Control or VTS

Not applicable to Tepar.

8.2 Maritime Authority

The maritime authority to which the Terminal is subordinated is the Harbor Master of Paraná (CPPR).

The Harbor Master is the authority in the maritime space of the State of Paraná, which includes the areas of the Organized Ports of Paranaguá and Antonina. The Port Commander is responsible for determining the actions to be taken and the penalties to be applied to those responsible for any incident within the port limits.

8.3 Pilotage

For ships whose size exceeds a gross tonnage of 2,000 DWT, it is obligatory to use the pilotage services, both in the case of foreign and Brazilian ships, including tankers, propane carriers or ships carrying explosive cargoes. Pilotage will be optional for Brazilian ships with gross tonnage below 2,000 DWT, or foreign ships freighted by

Brazilian company, provided they are commanded by Brazilian naval personnel of the rank of ship's officer or cabotage master.

The pilot embarkation point is close to the buoy No. 1, regardless the channel to be used, either Southeast or Galheta. The circular maritime area with a 1-mile radius, indicated on the chart 1821, with 1-sec white-flashing luminous buoy, is the pilot's waiting area. The limits of the mandatory pilotage zone run from the embarkation and disembarkation locations used by the pilots, indicated in the nautical chart 1824, when approaching the Ports of Paranaguá and Antonina by the Galheta channel, up to where the ship berths.

The request for a pilot may be made by the navigation company's agent, at least three hours in advance, when the estimated entrance or exit time of the ship must be specified. Ships approaching Paranaguá shall contact the Paranaguá-Rádio, channel 16 VHF, two hours before reaching the pilot waiting area. The Associação de Práticos permanently monitors channel 16 VHF, and traffic on channels 12 and 14 VHF.

The main restriction on pilots embarking refers to the sea conditions, which at the Galheta channel, when the wind exceeds 6 (Beaufort scale), make it difficult for the pilot boats to pass.

In strong winds (7 on the Beaufort scale, speed between 28-33 knots), the Paranaguá bar breaks strongly, and the pilots do not go to the ships; thus, entering the channels is not recommended.

For a ship to be able to enter the channel, the maximum draft at present is 41 feet.

In all situations, the pilotage service is called into action by the ship's agent.

8.4 Tugs and Other Maritime Services

8.4.1 Tugs

At least one tug with an attached rope must be used during the entire maneuver.

There are companies that provide maritime towing services and are registered by the Administration of the Ports of Paranaguá and Antonina. Each one of them must keep at least one tug operating in the Organized Port area. Only registered tugs may operate in this area. The tug companies must advise Appa about any vessels out of operation, and the estimated period for their return to towing activities.

The recommended number of tugs is defined in the rules and procedures for the Harbor Masters (NPCP), and will depend on the gross tonnage of the ships and the static traction force of the tugs. At Appa's discretion, on advice from by the pilotage, the recommended number may be altered, in view of the sophistication of the ship to be towed and the berthing risks (refer to the Appendix E).

The maneuvers requiring assistance from tugs will be monitored by Appa, under request from the ship's owner or agent. No towing maneuver may be carried out unknown to Appa, who will determine the priorities.

Other maneuvers with tugs considered as independent must be requested directly to the companies providing this service at Paranaguá, under advice to Appa.

More powerful tugs will have priority over the others in the maneuvers with large-size ships.

Tug Services

Operator	Name	Type HP/kW	Total (Bollard pull)	Static Traction (tonnes)
Wilson Sons	Centaurus	Single Screw, Kort Nozzle	1,600 kW	35.00
	Neptuno	Azimutal Schottel SRP	2,475 kW	45.00
SulNorte	Curitiba	Single Screw, Kort Nozzel	1,680 HP	21.00
	Abrolhos	Azimuthal Stern	4,400 HP	52.35
CNL	Lagoa Baiana	Convencional	2,100 HP	33.00
	Ametista	Azimutal	3,470 HP	40.00
Metalnave	Pelagius	Azimutal	3,940 HP	50.36
	Avalon	Convencional	2,430 HP	21.81

8.4.2 Other services

Ship repairs: repair needs must be communicated to the ship's agency, which will meet these according to the local resources.

Support boats: At the Port of Paranaguá, there are boats to support maneuvers, which are requested by the pilot. There are companies who provide this service.

8.5 Other Oil Terminals

Cattalini Terminal: The pier itself extends towards the NW in relation to the pier at the Marine Terminal of Paranaguá, and has the capacity to berth two ships up to 50,000 DWT simultaneously. It has storage facilities for handling oil by-products, vegetal oil and chemical products.

8.6 Other Key Users

The two anchorage areas of the Appa Flammables Public Docks are operated by Transpetro, but are included in the port facilities, or Organized Port of Paranaguá. Also operating in the Flammables Public Docks, besides Transpetro, are Cattalini – Terminais Marítimos Ltda. and União Vopak – both of them handling chemical products and vegetal oil.

9

Emergency Plan

9.1 Emergency Contacts

The table below indicates the essential contacts, with telephone/fax number, and radio channels/frequencies.

Organization	Operating Times	Identification Acronym	Telephone (55 41)	Fax (55 41)	Cell phone (55 41)	VHF/UHF	
						Call	Conversation
Harbor Master	24 hours	CPPRJ	3422-3033	3420-1566	9959-2890	16	–
Tugs	24 hours	–	–	–	–	16	13
Pilots	24 hours	–	3422-4711	3423-1404	–	16	13
Terminal Control Room	24 hours	–	3420-4105	3420-4207	9978-1035	–	09
Tepar Management	7:00 a.m. to 4:50 p.m.	–	3420-4000	3420-4212	9978-0386	16	09
Fire Department	24 hours	–	193	–	–	–	–
Civil Defense	24 hours	–	3423-1202	3423-1202	–	–	–
Paranaguá City Administration	1:00 p. m. to 7:00 p.m.	PMP	3420-2400	–	–	–	–
IAP	24 hours	–	3422-8233	3422-8233	–	–	–
Ibama	24 hours	–	3423-1818	–	–	–	–

9.2 Environmentally Sensitive Areas

The enterprise involving the Marine Terminal of Paranaguá (Tepar) and the Araucária–Paranaguá Oil Pipeline (Olapa) is located in a highly sensitive environmental region: Paranaguá Bay, Antonina Bay and part of the Serra do Mar (Coastal Sierra).

The Local Contingency Plan describes other areas sensitive to an environmental impact that may involve the Terminal and the Olapa (Araucária–Paranaguá Oil Pipeline) System.

9.3 General Description of the Organization for Combating Emergencies

The responsibilities for handling occasional emergencies involving vessels arriving at the Terminal are

Incidents within the Paranaguá Bay and Antonina Bay involving Transpetro

Incident type	Organization in Charge	Other Organizations Involved			
Collision in the	Harbor Master channel	Civil Defense	Transpetro	–	–
Vessel running aground	Harbor Master	Civil Defense	Transpetro	–	–
Collision at the berth	Harbor Master	Transpetro	Civil Defense	–	–
Vessel sinking	Harbor Master	Civil Defense	Fire Department	Transpetro	–
Fire onboard	Ship	Transpetro	Fire Department	Civil Defense	Harbor Master
Fire at the berth	Transpetro	Fire Department	Civil Defense	Harbor Master	–
Pollution	Transpetro or ship	Harbor Master	IAP	Ibama	–

9.4 Emergency Plans

The LCP (Local Contingency Plan) is the Tepar contingency plan for combating emergencies at all its facilities. Responsibility for updating it lies with the local SMS (Health, Environment and Safety activities).

The emergency and combat equipment must be kept ready for use while the ship is berthed. The fire hoses must be extended, one forward and other aft, except where the

fire-fighting monitors may replace this requirement. In case of fire, the ship must be equipped with a universal flange so that the Terminal can help to combat it. If the fire is not extinguished, the ship shall immediately distance itself from the berth (cast off and towed away). The main pier has three shelters for fire fighting equipment, with constantly pressurized water pipes. Two portable extinguishers with chemical powder must be at the ready near the onboard manifold.

Steel wires for emergency towing must be left hanging down to the waterline, along the bow and quarter of the board opposite to the berthing board, and must be fast to the onboard bollards, with the rope hands on the waterline during the entire operation. In addition, all the tankers must comply with Resolution A535 of the IMO meeting, which describes emergency towing and its forward and aft equipment, comprising a strong lifting handle and towing rope. This equipment must be extended and accessible for immediate connection when the ship is in the evolution basin.

Tepar also keeps an emergency kit with some equipment and tools ready for use in combating small emergencies involving the ships berthed at the docks (international connection for fire-fighting flange, shovels, buckets, squeegees, wooden wedges and mallets, etc.).

Tepar has an Emergency Response Center (CRE) complete with modern equipment and various facilities for use in accidental pollution. Intensive training sessions are held periodically to qualify the Terminal employees to act according to the LCP (Local Contingency Plan). Service and support boats, tanker and collecting vessels remain berthed at the floating pier, in a state of readiness.

The Terminal has an ambulance equipped for providing first aid. A nurse works in administrative regime, the period when there is the greatest number of people due to maintenance services and building works. The more serious cases or those occurring out of the business hours will be forwarded to authorized hospitals.

9.5 Public Resources for Combating Emergencies

Transpetro, via Tepar and other operational units will, when required, put its Local Contingency Plan into practice.

Transpetro has resources that can be used for mitigating sea pollution incidents involving the Terminal or its ships.

For these and other emergencies, the public organizations offer the resources for which they were designated.

9.5.1 Local Emergency Services

The Fire Department, Civil Defense, environmental agencies and other authorities involved have the resources for which they are designated and are called out according to the table in the section 9.1.

9.5.2 Mutual Assistance Plans

There is no formal PAM (Mutual Assistance Plan) involving the port (Appa), other port operators and Transpetro in Paranaguá.

In case of na emergency resulting in sea pollution in the Paranaguá and Antonina bays, the Harbor Master will be responsible (where ships are involved) for developing measures involving the Appa, environmental agencies and other entities involved, when applicable, with a view to combating the emergency immediately.

9.6 Combating Oil Spillage

The items below describe the resources available for combating pollution in the areas surrounding the Terminal.

9.6.1 Combat capacity of the Terminal

The resources available at the Terminal for combating oil spillage situations are listed in the LCP, which is available in all the administrative, operational and maintenance areas of Tepar.

9.6.2 Pollution-combat capacity of the environmental agency

Where environmental accidents happen, the IAP (Environmental Institute of Paraná) acts together with the Civil Defense, the Fire Department, the Highway Patrol, the Park Rangers and other public and non-governmental institutions, whenever specialized assistance is required.

9.6.3 Resources available in the Mutual Support Plans of other Terminals

The resources available at other Transpetro terminals to meet pollution emergencies occurring in the area bordering the Terminal are listed in the LCP.

9.6.4 Combating level-2 emergency

An emergency that extrapolates the Terminal limits and for whose control internal resources are insufficient, thus requiring that the Regional Emergency Plan be set in motion.

These resources, their state of readiness and how they are brought into play, are described in the Local Contingency Plan.

9.6.5 Combating level-3 emergency

Organization designated to combat a significant pollution incident.

The hypothesis of an accident that extrapolates the Terminal limits and whose effects can be expected to reach people, areas or facilities outside the Terminal area.

To combat this level of emergency, the resources foreseen in the Consolidated Contingency Plan will be required.

9.7 Combating Large-Scale Incidents

The LCP at Tepar lists those actions and those responsible for every type of event expected to occur within its unit, pipelines or vessels, and which involve third parties. For events not foreseen in this document, Transpetro will provide all the national or international resources within its reach.

10

CONTACTS

The following tables indicate the organization, title, telephone, fax, e-mail and radio channel/frequencies.

10.1 Terminal

Location	Contact	Telephone (55 41)	Fax (55 41)	VHF/UHF Channels	
				Call	Conversation
Berths P-1 and P-2	Operator	3420-4268	3420-4107	16	09
Secondary pier	Operator	3420-4269	3420-4107	16	09
Control Room	Operator	3420-4105	3420-4107	16	09
Shift supervisor	Supervisor	3420-4104	3420-4107	16	09
Security (SMS)	Technician	3420-4102	3420-4112	09	09

10.2 Port Services

Organization	Contact	Telephone (55 41)	Fax	E-mail	VHF/UHF Channels	
					Call	Conversation
Harbor Master	Official on duty	3422-4711	–	–	16	–
Pilot Association	Dispatcher	3422-4711		assessoria@riopilot.com.br	16	13
Tugs	Agency	As item 10.3	Idem 10.3	–	16	13

10.3 Navigation Agents and Suppliers

Agência de Vapores Grieg S/A
Av. Arthur de Abreu, 29 – 6º andar
ZIP Code: 83203-480 – Paranaguá – Paraná
Phone: (41) 3423-1123
Fax: (41) 3422-7742/ 3423-4516
E-mail: griegpga@griegpr.com.br

Wilson Sons Agência Marítima Ltda.
Av. Arthur de Abreu, 29 – 5º andar
ZIP Code: 83203-480 – Paranaguá – Paraná
Phone: (41) 3422-1444
Fax: (41) 3423-3020
Telex: 3414-372/3414-143
E-mail: pfpg@wilsonsons.com.br

Agência Marítima Orion Ltda.
Rua Manoel Correia, 1345
ZIP Code: 83206-030 – Paranaguá – Paraná
Phone: (41) 3422-1231
Fax: (41) 3422-4987
Telex: 3414-117
E-mail: orion@png.amorion.com.br

Agência Marítima Transatlântica Ltda.
Rua Nestor Victor, 800
ZIP Code: 83203-540 – Paranaguá – Paraná
Phone: (41) 3420-4600
Fax: (41) 3423-2393
Telex: 3414-113
E-mail: tranship@tranship.com.br

Agência Marítima Transcar Ltda.
Av. Coronel José Lobo, 407
ZIP Code: 83203-310 – Paranaguá – Paraná
Phone: (41) 3423-1266
Fax: (41) 3422-6331
Telex: 3414-168/ 3414-123
E-mail: transcar@transcar-png.com.br

Agência Marítima Cargonave Ltda.
Av. Gabriel de Lara, 1040
ZIP Code: 83203-250 – Paranaguá – Paraná
Phone: (41) 3422-5480
Fax: (41) 3423-2249
E-mail: corgonave@corgonave.com.br

Cargill Agrícola S/A
Rua João Eugênio, 816
ZIP Code: 83203-380– Paranaguá – Paraná
Phone: (41) 3423-1455/ 3420-2000
Fax: (41) 3423-3939
Telex: 3414-177
E-mail: marcioanderlinesouza@cargil.com

Willians Serviços Marítimos Ltda.
Rua João Eugênio, 613
ZIP Code: 83203-380 – Paranaguá – Paraná
Phone: (41) 3422-5221 / 3422-7266
Fax: (41) 3422-7386
Telex: 3414-376
E-mail: willpga@willian.com.br

V. Morel S/A – Agentes Marítimos e Desp.
Av. Arthur de Abreu, 29 – 6º andar
ZIP Code: 83203-480 – Paranaguá – Paraná
Phone: (41) 3422-7711 / 3423-2290
Fax: (41) 3422-7111
E-mail: paranagua@v.morel.com.br

Fertimport S/A
Rua Manoel Correia, 1402
ZIP Code: 83203-410 – Paranaguá – Paraná
Fax: (41) 3422-7738
Phone: (41) 3423-4142
E-mail: operations-pgua@fertimport.com.br

Fidelidade Agência de Cargas S/C Ltda.
Princesa Isabel, 251 – Centro
ZIP Code: 83206-436 – Paranaguá – Paraná
Phone: (41) 3423-1077
Telex: 3414-107
E-mail: leone@pinho.com.br

Free Shipping Agência Marítima Ltda.
Rua João Eugênio, 255
ZIP Code: 83203-400 – Paranaguá – Paraná
Phone: (41) 978-2246
E-mail: freeship@png.matrix.com.br

Helice Agência Marítima Ltda.
Av. Arthur de Abreu, 29
ZIP Code: 83203-480 – Paranaguá – Paraná
Phone: (41) 3423-1211
Fax: (41) 3423-1924 e (041) 3423-4327
Telex: 3414 – 203
E-mail: librapgu@lol.com.br

Interocean Agência Marítima Ltda.
Rua Theodorico dos Santos, 720
ZIP Code: 83203-410 – Paranaguá – Paraná
Phone: (41) 3420-4800
Fax: (41) 3423 – 2821
Telex: 3414-234
E-mail: interocean@lol.com.br

Marcon – Serviço de Desp. em Geral Ltda.
Rua Rodrigues Alves, 870
ZIP Code: 83203-170 – Paranaguá – Paraná
Phone: (41) 3420-4500
Fax: (41) 3420-4510
Telex: 3414-149
E-mail: marcon@marcon.com.br

Mar Oil Apoio Marítimo Ltda. – Agents
Av. Coronel Santa Rita – Inflamável (Rocio) (Petrobras)
ZIP Code: 83221-340 – Paranaguá – Paraná
Phone: (41) 3422-4291
Fax: (41) 3422-8060
Telex: 3414-350
E-mail: maroilparanagua@lol.com.br

Margrain Serviços Marítimos Ltda.
Rua Xavier da Silva, 1919
ZIP Code: 83203-380 – Paranaguá – Paraná
Phone: (41) 3422-6002
Fax: (41) 3422-6310
Telex: 3414-327
E-mail: margrain@lol.com.br

Rocha Agência Marítima Ltda.
Av. Gov. Manoel Ribas, 317
ZIP Code: 83221-050 – Paranaguá – Paraná
Phone: (41) 3423-1221 / 3420-2300
Fax: (41) 3422 -3118
Telex: 3414-128
E-mail: kelly-cpd@rochamaritima.com.br

Rodrimar S/A – Agente e Comissária
Av. Arthur de Abreu, 29 – 1º andar
ZIP Code: 83203-480 – Paranaguá – Paraná
Phone: (41) 3422-2322
Telex: 3414-147
E-mail: paranagua@rodrimar.com.br

Sulnav Agência Marítima Ltda.
Av. Gabriel de Lara
ZIP Code: 83203-550 – Paranaguá – Paraná
Phone: (41) 3423-1330
Fax: (41) 3422-7804
Telex: 3414-373
E-mail: sulnav@netpar.com.br

Supermar S/A
Baronesa do Cerro Azul, 1284
ZIP Code: 83203-205 – Paranaguá – Paraná
Phone: (41) 3422 -6856
Fax: (41) 3422-6523
E-mail: supermarpgua@lol.com.br

Tibagi Serviços Marítimos Ltda.
José Lobo, 194
ZIP Code: 83203-310 – Paranaguá – Paraná
Phone: (41) 3422-4488 / 3423-3435
Fax: (41) 3423-3783
Telex: 3414-138
E-mail: tibagipgua@refinadora.com.br

Seatrade Agência Marítima Ltda.
Av. Portuária, s/n – prédio do TCP
1° andar – sala 7 – Dom Pedro II
ZIP Code: 83203-970 – Paranaguá – Paraná
Phone: (41) 3423-2031
Fax: (41) 3422-0766
E-mail: seatrade@png.seatrade.com.br

10.4 Local authorities, State and National Agencies

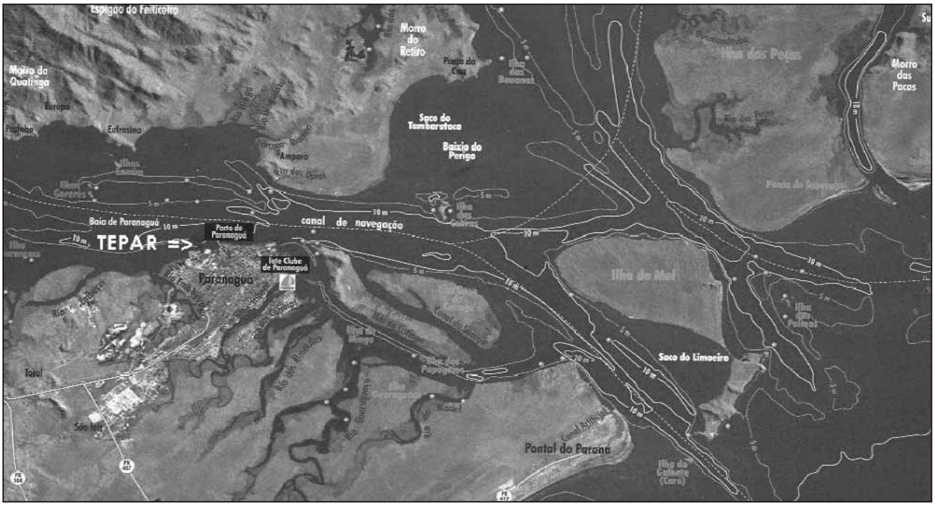
The table in section 9.1 lists these authorities and their respective contacts.

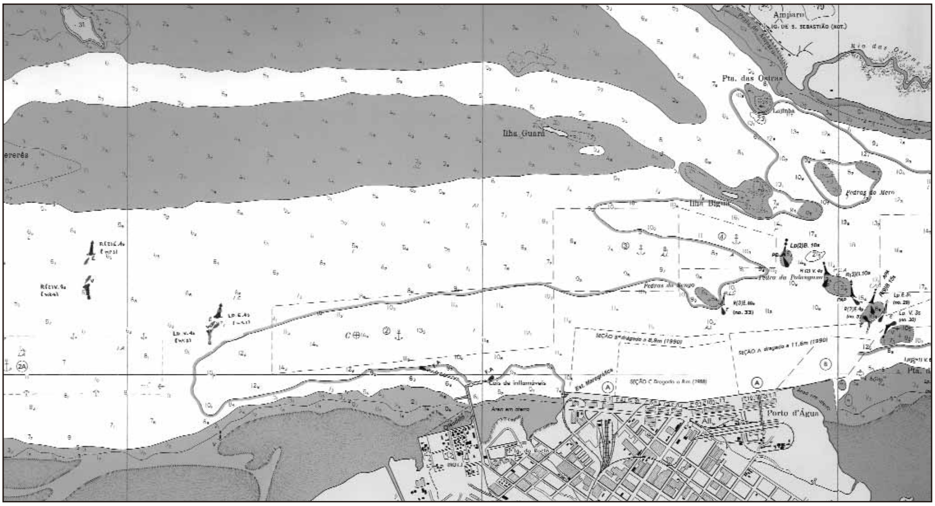
10.5 Organizations for Combating Emergencies

The organizations available at the port for combating emergencies are listed in section 9.1.

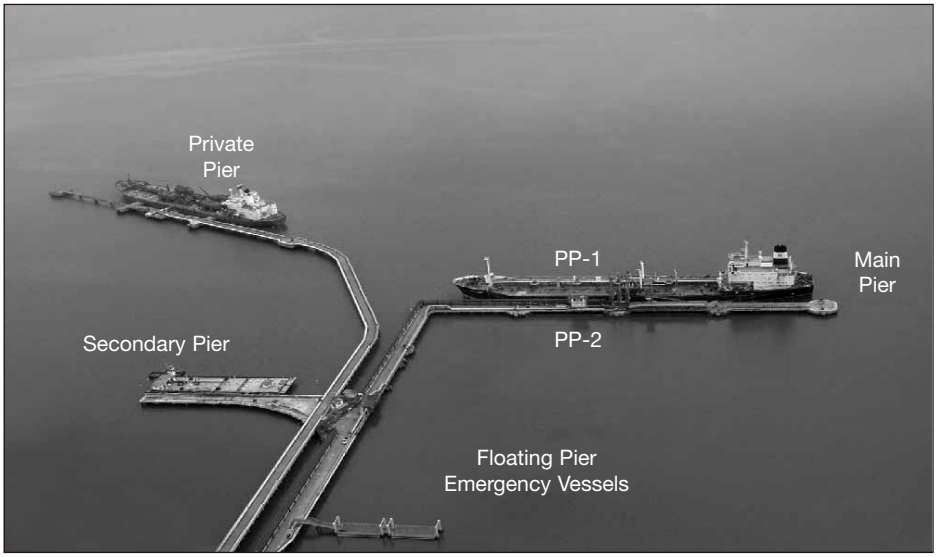
Appendices

A – Charts with berths and approaches

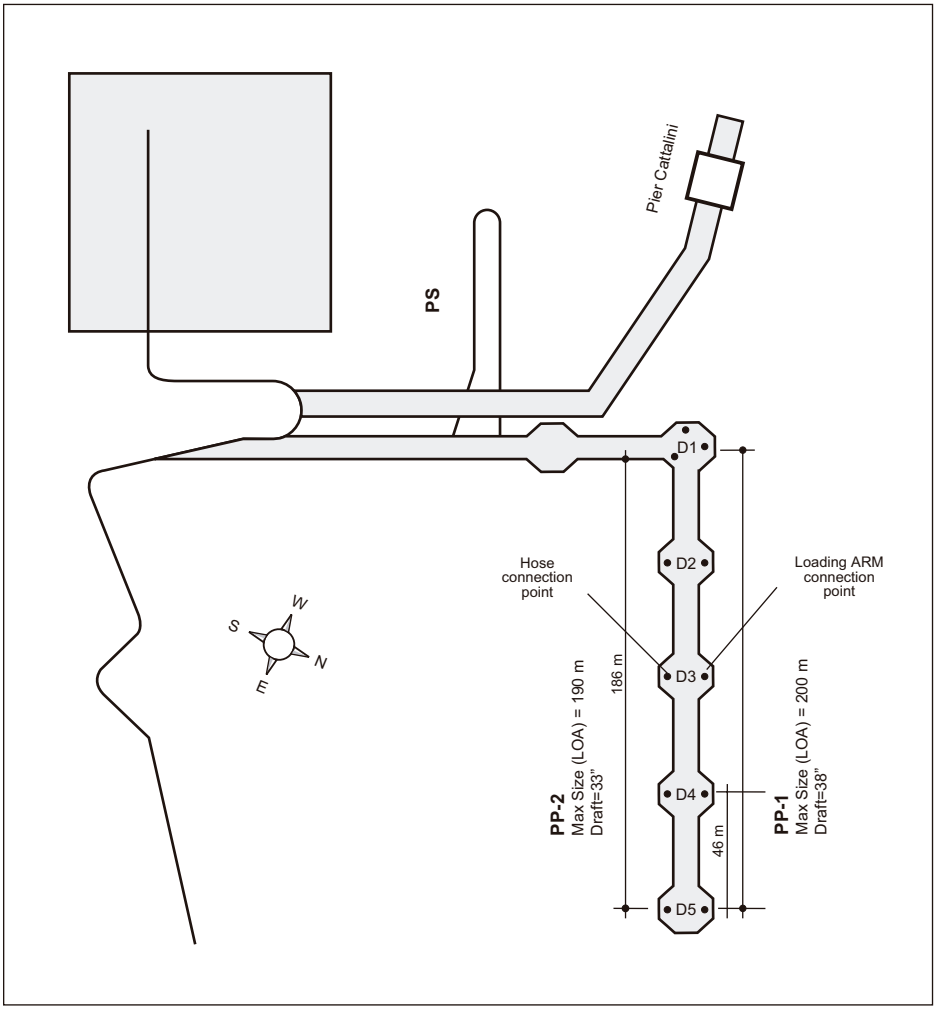




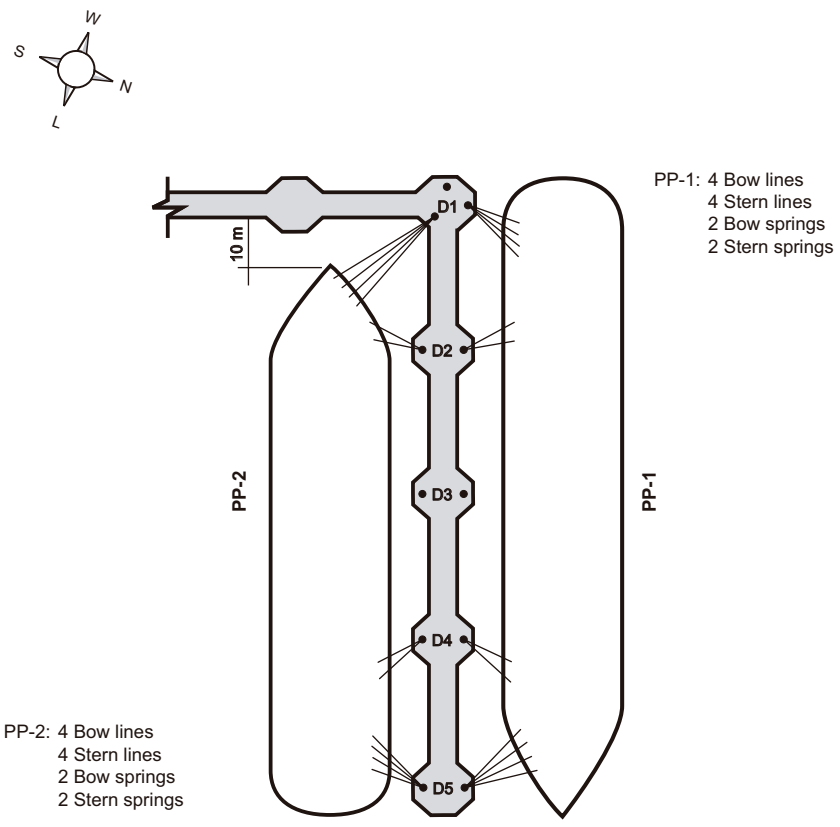
B – Terminal pier



B1 – Configuration of the Terminal pier



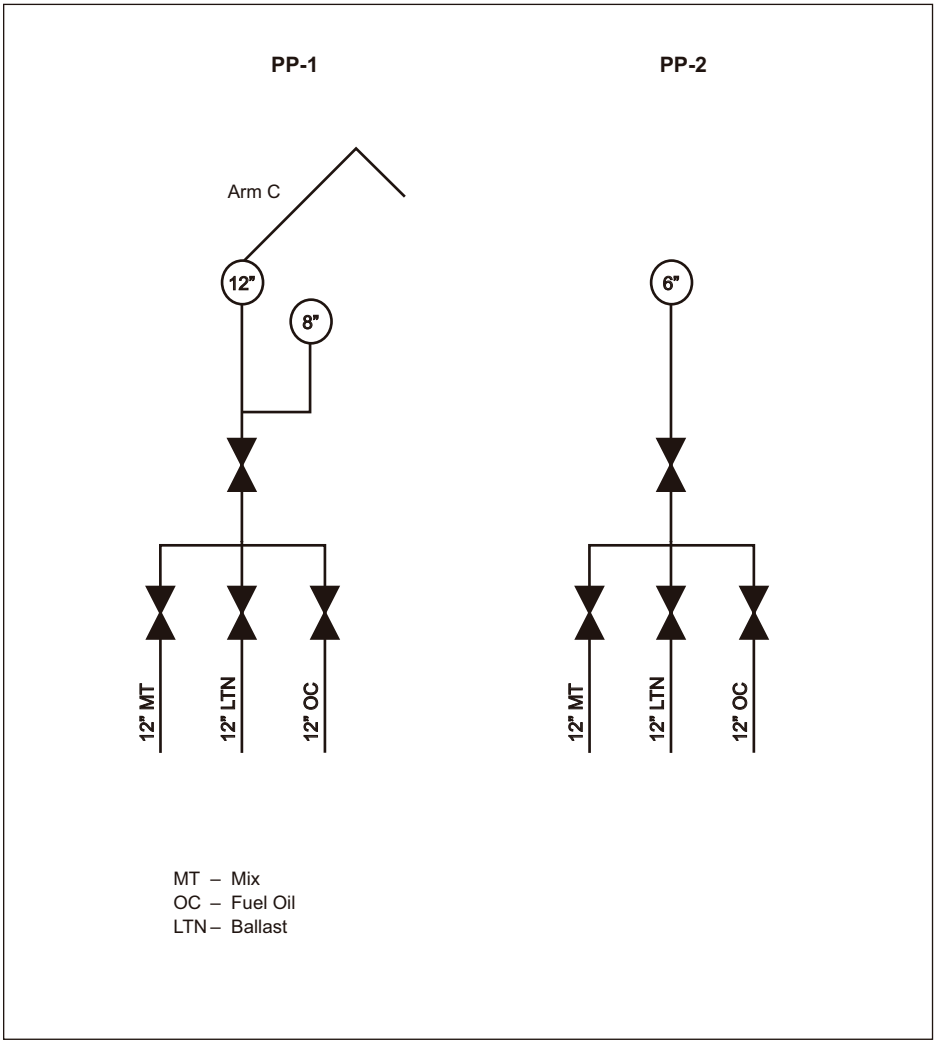
B2 – Mooring arrangement at PP-1 and PP-2



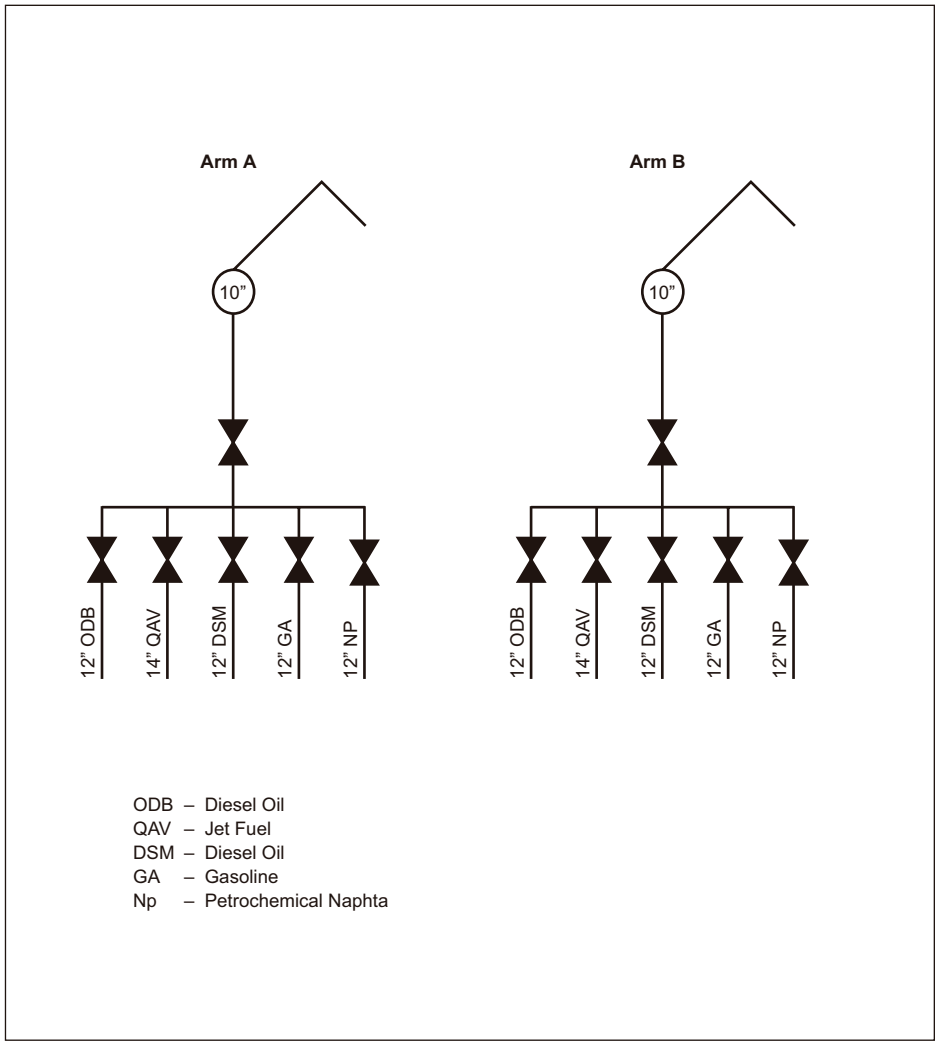
Note:
The basic mooring scheme may be reinforced as result of adverse wind and sea conditions.
Add a spring line opposing west wind and ebb tide in the external (PP-1) and internal (PP-2) piers.

C – Simplified scheme of arms, hoses and lines for loading and discharging

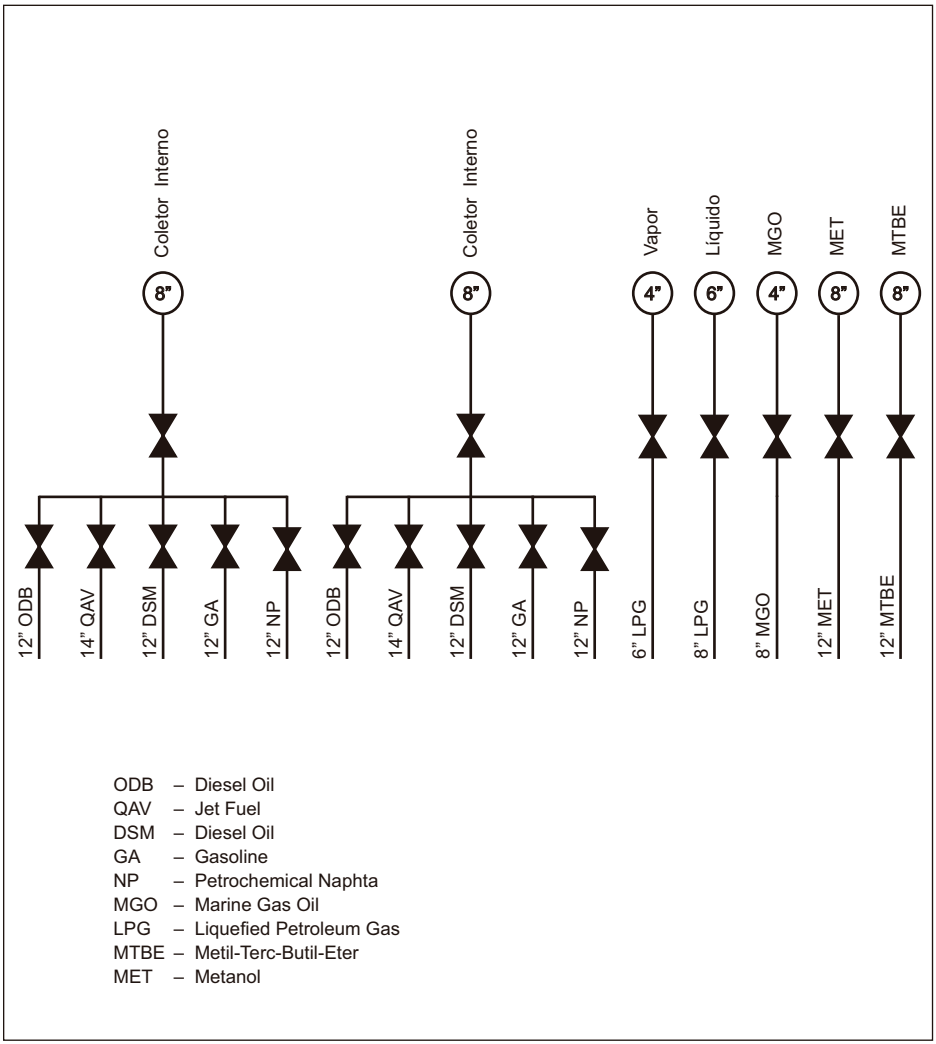
C1 – Loading and discharging dark products at PP-1 and PP-2



C2 – Loading and discharging light-colored products at PP-1



C3 – Loading and discharging light products at PP-2



ODB – Diesel Oil
QAV – Jet Fuel
DSM – Diesel Oil
GA – Gasoline
NP – Petrochemical Naphta
MGO – Marine Gas Oil
LPG – Liquefied Petroleum Gas
MTBE – Metil-Terc-Butil-Eter
MET – Metanol

D – Typical loading and discharging flow rates

Product	Loading Rate	Discharge Rate
Light-colored products	1,000 m^3/h	1,000 m^3/h or 10.5 kgf/cm^2
Dark products	800 m^3/h	1,000 m^3/h or 10.5 kgf/cm^2
LPG	200 m^3/h	Limited by the max. pressure of 15.0 kgf/cm^2 and min. temperature of + 5º C
Ballast	–	1.000 m^3/h or 10.5 kgf/cm^2

Note: The flow rates may be altered according to the combination of lines, hoses and arms at the Terminal, and the ship's capacity.

E – Correlation between size and traction power

DWT (t)	Traction Force (Bollard Pull) metric tonnes	Recommended Number of Tugs
2,000 to 2,500	3	1
2,501 to 3,000	5	1
3,001 to 4,500	6	1
4,501 to 5,000	7	1
5,001 to 7,500	9	1
7,501 to 10,000	11	1 to 2
10,001 to 12,500	14	1 to 2
12,501 to 15,000	17	1 to 2
15,001 to 17,500	19	1 to 2
17,501 to 20,000	21	1 to 2
20,001 to 25,000	25	1 to 2
25,001 to 30,000	28	1 to 2
30,001 to 35,000	32	2
35,001 to 40,000	36	2
40,001 to 45,000	39	2
45,001 to 50,000	42	2

continues

DWT (t)	Traction Force (Bollard Pull) metric tonnes	Recommended Number of Tugs
50,001 to 60,000	46	2
60,001 to 70,000	51	2
70,001 to 80,000	53	2
80,001 to 90,000	55	2 to 3
90,001 to 100,000	56	2 to 3
100,001 to 110,000	58	2 to 3
110,001 to 120,000	60	2 to 3
120,001 to 130,000	62	2 to 3
130,001 to 140,000	64	2 to 3
140,001 to 150,000	66	2 to 3
150,001 to 160,000	81	2 to 3
160,001 to 170,000	83	2 to 3
170,001 to 180,000	8	2 to 3
180,001 to 190,000	87	2 to 3
190,001 to 200,000	89	2 to 3
200,001 to 210,000	90	4
210,001 to 220,000	91	4
220,001 to 230,000	93	4
230,001 to 240,000	95	4
240,001 to 250,000	96	4
250,001 to 270,000	98	4
270,001 to 290,000	101	4
290,001 to 310,000	106	4
310,001 to 330,000	110	4 to 6
330,001 to 350,000	114	4 to 6
350,001 to 370,000	118	4 to 6
370,001 to 390,000	121	4 to 6

F – Factors that condition access to the critical area of the Galheta channel for ships with drafts between 37.0 and 41.0 feet

1 Drafts Over 37.0 Feet up to 39.0 Feet

1.1 Daytime Traffic

→ No operating restrictions under any tidal range conditions;

→ Close to the flood tide slack water or after one hour from low tide;

→ Ship speed at the bottom between 8.0 and 14.0 knots;

→ Visibility of 2.0 miles;

→ Level 4 on the Beaufort Scale.

1.2 Night-time Traffic

→ No operation restrictions under any tidal range conditions;

→ Close to the flood tide slack water;

→ Ship speed at the bottom: 10.0 knots on entering and 12.0 knots on leaving;

→ Visibility of 4.0 miles;

→ Level 4 on the Beaufort Scale;

→ Special buoys (BL – E) should not have irregularities.

2 Drafts over 39.0 Feet up to 41.0 Feet

2.1 Daytime Traffic

- → No operation restrictions under any tidal range conditions;
- → Close to the flood tide slack water;
- → Minimum ship speed at the bottom: 10.0 knots for entering and 12.0 knots for leaving;
- → Visibility of 2.0 miles;
- → Level 3 on the Beaufort Scale;
- → In the absence of swells or rippling sea caused by wind gusts;
- → Weak to moderate wind.

2.2 Night-time Traffic

- → No operation restrictions under any tidal range conditions;
- → Close to the flood tide slack water;
- → Minimum ship speed at the bottom: 12.0 knots on entering and 14.0 knots on leaving;
- → Visibility of 4.0 miles;
- → Level 4 on the Beaufort Scale;
- → Special buoys (BL – E) should not have irregularities.

Note: Under favorable meteorological and sea conditions, at the discretion of the embarked pilot, and with prior authorization from the maritime and port authorities, the ship may sail in the navigation channels, and enter and leave the bar at speeds lower than those stipulated in the items 1.1, 1.2, 2.1 and 2.2.