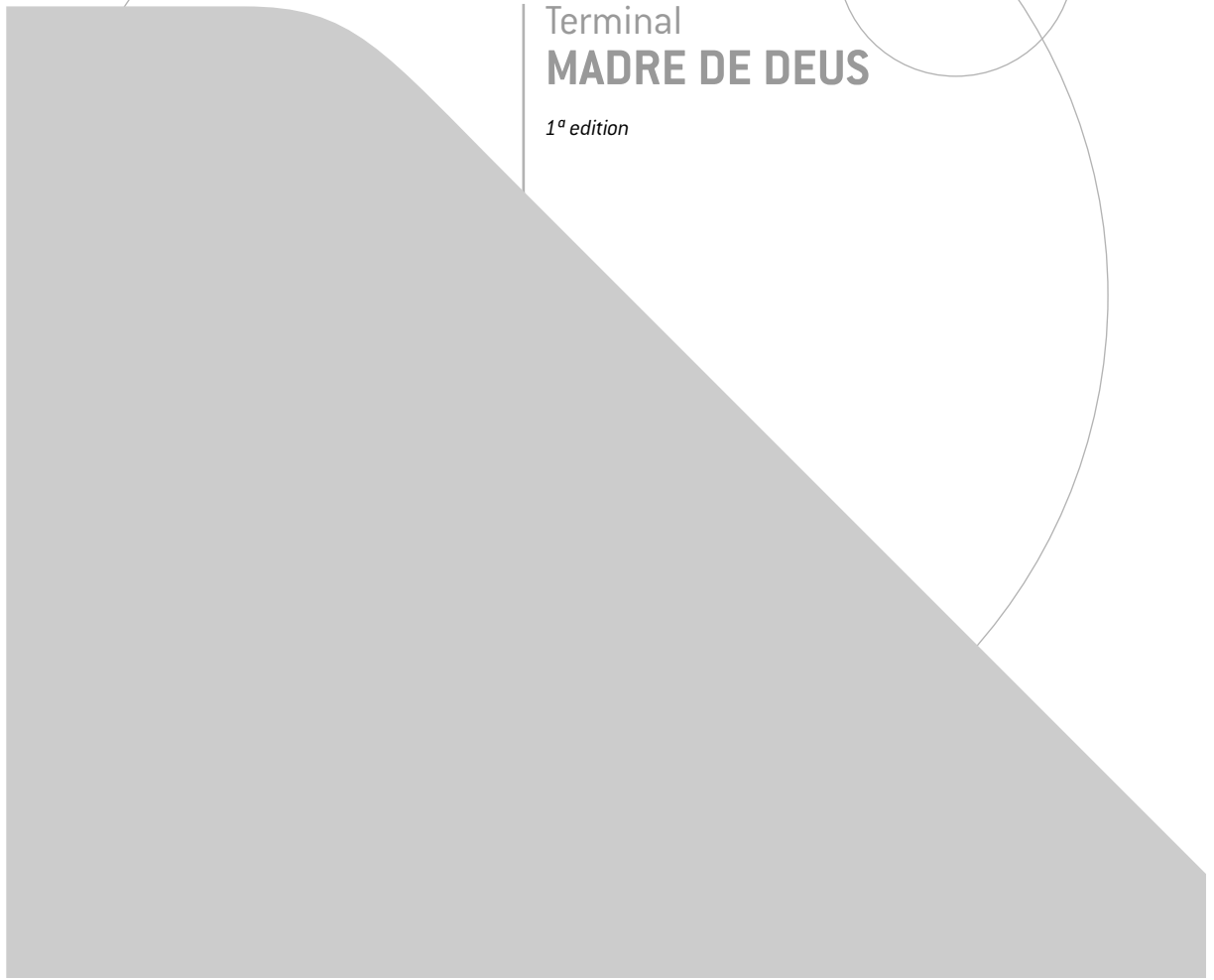




PORT INFORMATION

Terminal
MADRE DE DEUS

1ª edition





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INTRODUCTION

This Publication is prepared by Petrobras Transporte S.A. (Transpetro), which operates the Marine Terminal of Madre de Deus (Almirante Alves Câmara Terminal – Temadre), at the Port of Madre de Deus, Bahia.

It provides the essential information to the ships operating at the Terminal, and is distributed in two versions – Portuguese and English – to the interested parties in the port, national and local authorities, and in the many divisions of the company.

The information contained herein serves to supplement, but never supersede or alter, any legislation, instructions, guidance or official publications, either national or international.

The Terminal reserves itself the right to change any information herein presented, with no advance notice.

Transpetro will analyze any suggestion, recommendation or correction related to the topics addressed herein, in order to improve the information. Where any information is found to be incorrect and requiring updating, please contact:

Gerência do Terminal Aquaviário de Madre de Deus

Rua Milton Bahia Ribeiro, s/n

ZIP Code: 42600-000 – Madre de Deus – Bahia

Phone: (55 71) 3642-3707

Fax: (55 71) 3642-3206

Petrobras Transporte S.A. – Transpetro

Av. Presidente Vargas, nº 328 / 9º andar – Centro
ZIP Code: 20091-060 – Rio de Janeiro – RJ – Brazil
Phone: (55 21) 3211-9085
Fax: (55 21) 3211-9067

The most recent version of this publication may be obtained by sending an e-mail request to:
transpetro.temadre@petrobras.com.br

DEFINITIONS

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

Dry tide – Minimum tidal amplitude condition in a given period of the year.

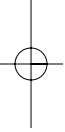
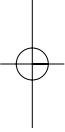
Giaont – Safety Surveyor Staff.

IMO – International Maritime Organization.

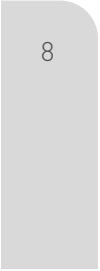
Syzygy tide – Maximum tidal amplitude condition in a given period of the year.

UTC – Universal time control – Standard universal time.

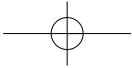
VTS – Vessel Traffic Service – Traffic Service to the Ship.



PORT INFORMATION



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CHARTS AND REFERENCE DOCUMENTS

Information on the Terminal may be obtained in the publications below.

3.1 Nautical Charts

Area	Chart Number	
	Brazil (DHN)	British Admiralty
Vicinities of the Port of Salvador	1101	NZ 541
Port of Salvador	1102	–
Aratu Bay and surroundings	1103	–
Baía de Todos os Santos (parte nordeste)	1104	–
Port of Madre de Deus	1105	–
Todos os Santos Bay (northern part)	1106	–
Todos os Santos Bay (west part)	1107	–
Todos os Santos Bay (Port of São Roque and vicinities)	1108	–
Todos os Santos Bay	1110	NZ 545

3.2 Other Publications – Brazil (DHN)

Type/Subject	Publication Number Brazil (DHN)
Normas e Procedimentos da Capitania dos Portos	NPCP
Navigation aid on the east coast	DH1- II

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 Appendix E
Essential Terminal information	X				X		As per Appendices B, C and D
Before Cargo or Bunker Transfer							
Details about on-board cargo/slop/ballast		X		X			As per Appendix F
Essential operating information (fill in locally)	X				X		As per Appendix F
Ship/Shore Safety Checklist			X			X	As per Isgott Annex A

continue

Information	Prepared by:			Delivered to			Comments
	Terminal	Ship	Both	Terminal	Ship	Both	
During Cargo or Bunker Transfer							
Repeat the Safety Checklist			X			X	As per Isgott Annex 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 port departure data		X		X			Pilot disembarkation time and port departure time

DESCRIPTION OF THE PORT AND ANCHORAGE AREA

5.1 General Description of the Terminal

The Terminal facilities are located in the Port of Madre de Deus, on the island with the same name, approximately 15.5 miles from the anchorage area, to southeast of Banco da Panela, in the Port of Salvador. The Terminal is limited at north by the Maria Guarda Island, at south by Frade Island, at east by Maré Island, and at west by the Vacas Island.

The Terminal pier enables five ships to berth simultaneously. All the mooring berths have luminous beacons, and are rated as main and secondary. The main berths are identified by the letters PP, followed by numbers: PP-1, PP-2, PP-3 and PP-4. The secondary berths are identified by the letters PS, followed by numbers: PS-1 and PS-2.



5.2 Location

5.2.1 Coordinates

[Datum – horizontal: Córrego Alegre/MG]

→ Latitude: 12° 45' 12" S

→ Longitude: 038° 37' 27" W

5.2.2 General geographical location

Temadre is located on the Todos os Santos Bay, Madre de Deus, Bahia, Brazil.

5.3 Approaching the Todos os Santos Bay and the Terminal

5.3.1 General description of the Todos os Santos Bay

Todos os Santos is one of the largest bays in Brazil. Its bar is located between Ponta de Santo Antônio, at E, and Itaparica Island, at W, with a width of 5 miles; it extends for 22 miles, in a N-S direction, and has maximum width of 18 miles in the E-W direction. Its eastern bank is occupied by the city of Salvador, capital of the State of Bahia; the north-eastern bank is low, and the northern and western banks are mountainous. There are numerous islands in the bay, and several rivers discharge on its banks, the most important is the Paraguaçu River.

The bay contours rise gradually and are very broken, especially to the east and north, thus providing well-sheltered anchorage areas.

The bay is indicated on the charts 1100 to 1108, and 1110 of the Brazilian Navy's Diretoria de Hidrografia e Navegação (DHN).

Located in the Todos os Santos Bay are the ports of Salvador and Aratu; Aratu Naval Base; Usiba, Dow Química and Tequimar Terminals, and Transpetro Oil Terminal.

The Maré, Frade, Vacas, Madre de Deus, Itaparica, Bom Jesus dos Passos, Maria Guarda and some other small islands are located to north of the bay.

Frade Island is located at 5 to 8 miles towards north-northeast direction, on the north end of the Itaparica Island.

In the northeast end of the Frade Island there is Ponta do Cavalo. At approximately half a mile to the north of Ponta do Cavalo is the Madre de Deus Island, separated from the continent by a shallow and narrow channel, called Furo do Suape.

At Ponta Mirim, on the southern boundary of Madre de Deus Island, the facilities of the Marine Terminal of Madre de Deus (Temadre) are to be found.

5.3.2 Anchorage

See nautical charts from DHN (Diretoria de Hidrografia e Navegação da Marinha do Brasil) numbers 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108 and 1110.

Charts, routes and other Brazilian publications published by DHN may be acquired in the Serviço de Sinalização do Leste, at the side of Harbor Master, in the city of Salvador, or under request from the ship's agent.

Anchorage areas for waiting and visits

Ships carrying fuel must anchor in the area delimited by a circle centered at position 12° 57.1' S – 38° 33.5' W, and with a radius of 0.25 mile, depth ranging from 16 to 46 meters, sandy and shelly seabed, not sheltered against winds and swells proceeding from the south.

Ships proceeding from other countries will be visited by the maritime authorities (Health, Maritime Police and Internal Revenue Service (Receita Federal)), in the same area delimited above. Occasionally, where the time of arrival matches the pilot's working hours, the visit may occur at the Terminal.

Anchorage area for pilot embarkation

The pilot will embark in the anchorage area indicated on the DHN chart 1102 to the SW of Banco da Panela, Lat. 12° 58' 10" S – Long. 38° 32' 22" W, Salvador.

Anchorage area for cargo relief

In the Port of Salvador, as well as near the Marine Terminal of Madre de Deus, cargo relief is forbidden. However, in the Todos os Santos Bay, it is permitted when the weather conditions are favorable, and only after authorization from the Harbor Master.

Forbidden anchorage areas

Anchorage is prohibited in the:

- Areas demarcated in the charts by reserved limit lines;
- In the stretch in which Ferryboats' circulate;
- Port access channels;
- Area demarcated with maritime limit lines on the Aratu Bay, between Quindu and Mapele, due to the gas pipeline;
- In the evolution basin at Madre de Deus and the respective access channel;
- Near the facilities of the Madre de Deus Terminal and oil exploration platforms.

In emergency situations, and for a short period of time, the ship may anchor in the basin to the SW of the Terminal, a location indicated in the chart 1105 from DHN.

5.3.3 Navigation aid in the access channel

The Terminal is accessed using a dredged and beacon signaled, channel monitored by the Diretoria de Hidrografia e Navegação (Brazilian Navy), whose initial position is Lat. 12° 49.2' S – Long. 038° 34.0' W and ends in the evolution basin, in front of the port facilities. It is 6 miles long. It narrows between the lighthouses 13 and 11, and is beacon signaled by 16 small numbered beacons on the port and starboard, with red and white colors, respectively.

The ships may approach the Terminal facilities on any day, and at anytime, provided they comply with the requirements from the Harbor Master and Pilotage, depending exclusively on the tide and meteorological conditions.

Pilotage is mandatory, and the pilot embarks in the Port of Salvador. The channel leading to the north-northeast section of the Port of Madre de Deus is relatively narrow at some points, and beacon signaled with radar reflectors.

5.3.4 Port control or VTS (Vessel Traffic Service)

The Ports of Salvador and Madre de Deus do not provide special traffic and navigation control services. The maritime traffic in the ports at Todos os Santos Bay is managed by the Harbor Master of Salvador.

For additional information, rules and warnings in force, refer directly to the CPBA web site: <http://www.cpba.mar.mil.br>.

5.3.5 Pilotage

The pilotage is mandatory for the ships heading to Temadre, from the anchorage area in Salvador

The pilotage services at the Todos os Santos Bay are on call 24 hours a day. The request for a pilot must be made by the ship's agent at least with 3 hours in advance of the ship leaving the anchorage, and 4 hours before starting the unberthing at Temadre.

Contact must be made via VHF, channel 16, prefix PVG 26, or by the telephones (55 71) 3241-8984, 3241-0778, 3327-1786 or fax (55 71) 3241-6058 e 3242-5901.

The pilot embarkation will occur in the specific anchorage area or other location previously agreed between the parties.

The ship's captain is the solely responsible for the maneuvers. In addition, he is obliged to inform the pilot about any abnormality or difficulties in the ship, such as, defects in mooring equipment, rudder, engine and/or boiler deficiency, or lack of the required equipment, which may offer risk for the navigation and ship berthing/unberthing.

After they are berthed, the ships must remain in conditions deemed satisfactory by the pilot and Terminal operators.

When the captain decides not to take up the pilot instructions, in order to preserve the maneuvering safety of the ship, the port captain, via ship's agent, shall be informed in writing. This fact will also be reported to Temadre by the ship's agency.

5.3.6 Tugs and port services

The Terminal has two tugs of its own that assist the berthing, unberthing, towing and "scout" maneuvers. Using these tugs is mandatory. When more than two tugs are required in the maneuver, the ship's agent must formally designate them to the Terminal supervisor.

The tugs will be put at the pilot's disposal in good time for the maneuver. When, due to safety reasons, the pilot deems it necessary to replace the tugs or increase their number, he must notify the agent to proceed accordingly and must inform the Harbor Master that they are participating.

The Terminal provides a mooring service that includes providing two diesel motorboats for help with the cable maneuvers during the mooring, unberthing and emergency tasks.

→ **Boats for transporting people** – The Terminal does not have boats specifically for transporting people. However, when the use of hull-side ladders is required to enable personnel to board, this service may be carried out by the berthing boats.

→ **Pilotage boat** – The pilot uses his own boat.

→ **Boats for delivering materials and food** – The Terminal does not allow the delivery of materials or food to the berthed ships.

5.1.1.1 Communication between tugs and ships

The tugs are equipped with VHF radio for on-going communication with the ships during the berthing/unberthing maneuvers. The watch is kept 24 hours a day on channel 16, so as to meet any emergency requirements.

During the maneuvers, in case of radio communication failure between the tugs and ships, standardized whistle signs must be used.

Risks to navigation

5.3.7.1 Approaching the Madre de Deus Island

The positions of banks and rocky ledges indicated by buoys may be more easily identified in the charts of the region.

At approximately 1.75 mile to the west-northwest of the Ponta de Monte Serrat lighthouse, there is a red light buoy that exhibits a red flash every 5 seconds; it is equipped with radar reflector that demarcates a rocky ledge, sounding to 8.5 to 11 meters (28 to 36 feet).

The Maré, Frade, Vacas, Madre de Deus, Itaparica, Bom Jesus dos Passos, Maria Guarda and some other smaller islands are located in the northern part of the bay, and are collectively called as Ilhas do Recôncavo.

Ponta da Sapoca is 6.5 miles north-northeast of Ponta de Monte Serrat, where there is the pier belonging to the Usina Siderúrgica da Bahia (Usiba), which projects itself to west of the point. Near to it, in a southerly direction, there is an outstanding tower (Latitude 12° 49' 07" S – Longitude 38° 29' 09" W).

There are many mooring buoys close to the pier's end.

Ponta Itamoabo, which is located at the extreme the southwest end of the Maré Island, is 9.5 miles from Salvador, in a northerly direction.

There is an abandoned white brick lighthouse on the southwest end of the Maré Island.

The Ponta do Caboto lighthouse is at an elevation of 34 meters (111 feet). It is a quadrangular brick construction, painted white, 8 meters (24 feet) tall, on the highest part of Ponta do Caboto, about 3 miles northeast of Ponta Itamoabo, in the eastern section of the channel that separates the Maré do Continente Island (Lp B 6 sec 34 m 14M, international No. G 0254).

The entrance to the Aratu Bay is about 10 miles north-northeast of the Port of Salvador, and may be reached by a tortuous and narrow channel, 2 miles long, at the mouth of the Cotegipe River. The bay depth ranges from 1.9 to 6.9 meters (1 to 3.7 fathoms), with a sandy and muddy seabed, where there are scattered stones. The approach to this channel is between boats found at the south of the Maré Island, and the east continental section is demarcated by a light buoy, painted black which exhibits 0.5-second white flashes at every 6 seconds, located 2.5 miles south-southeast of Ponta Itamoabo (Latitude 12° 48' S – Longitude 38° 32').

The east part of the channel entrance is demarcated by a red light buoy on the western limit of the bank, near the coast, approximately 3 miles southeast of Ponta de Itamoabo. Also, a red buoy demarcates the rocky ledge at a depth of 2.7 meters on the western side. The remaining channel is beacon signaled with buoys.

Frade Island is located between 5 and 8 miles north-northeast of the Ponta de Itaparica, at the extreme the northern end of Itaparica Island.

At the extreme the northeast of Frade Island, Ponta do Cavalo can be found. About half a mile north of Ponta do Cavalo one can find the Madre de Deus Island, separated from the continent by a shallow and narrow channel, called Furo do Suape.

The Frade Island lighthouse, international No. G 0266 Gr. Lp 2 B 6 sec 5M 9 m, is located at an elevation of 35 meters (114 feet). It is a quadrangular concrete construction, 5 meters (16 feet) tall, at the Ponta de Nossa Senhora de Guadalupe, on the southern part of the island, at an approximate distance of 6.5 miles west of Ponta de Itamoabo. From Ponta de Nossa Senhora de Guadalupe up to 2 miles in a south-southeasterly direction, it sounds less than 9.1 meters (30 feet), and there is a rocky ledge in the south-southeasterly direction, at a distance of 1.5 mile, where it sounds 4.9 meters (16 feet). There is another rocky ledge in the south-southwesterly direction, near Ponta do Farol, sounding less than 5.8 meters (19 feet), bearing 12° 50' 07 S – 38° 39' 12 W.

At Ponta Mirim, at the southern limit of Madre de Deus Island, the facilities of the Marine Terminal of Madre de Deus are to be found.

The Mataripe River discharges in the Recôncavo, about 16 miles from the Port of Salvador, and the approach to its mouth is made between the Maré and Frade islands, approximately 5.5 miles to the west.

The Mataripe Refinery, with several smokestacks, one of which is very noticeable, as well as a noticeable building, is approximately half mile north of the Mataripe River mouth.

The Port of Madre de Deus is to the north of Frade Island, between Madre de Deus and Vacas Island, approximately one mile to the west; this is an oil port. The approach from the eastern part of the Madre de Deus Island has beacon signaling.

The Temadre facilities include a bridge (1,300 m long) beginning at the southwestern part of Ponta Mirim, in the extreme southern end of Madre de Deus Island; there are two piers at the northern end of the bridge, a third one beginning at a “tooth” in the north-western part, a fourth at the southeastern end, and another one starting from a bridge extending for nearly 100 meters from the western part of Ponta Mirim.

There is a pier on the western part of the Madre de Deus Island, 3 meters (10 feet) at its deepest point, approximately 0.25 mile north of Ponta Mirim.

The Bom Jesus Island is located about 1 mile west of Ponta do Cavalo.

5.3.7.2 *References and signals*

- Ponta da Sapoca (Usiba's tower and pier, Lat. 12° 49' S – Long. 38° 29' W)
- Garcia d'Ávila Lighthouse (Lp 2B 12 sec, international No. G 0236)
- Itapoã Lighthouse (Lp B 6 sec, international No. G 0238)
- Mar Grande Lighthouse (Lp B 3 sec 9 m, international No. G 0244)
- Ponta do Caboto Lighthouse (Lp B 6 sec 34 m 14M, international No. G 0254)
- Ponta Itamoabo (Lat. 12° 48' S – Long. 38° 32' W)
- Ilha do Frade Lighthouse (Lp 2B 6 sec 5 m 9M, international No. G 0266)

- Mataripe Refinery (approximately half a mile north of the Rio Mataripe mouth, with smokestacks and 2 flares very visible at night)
- Ouréis Beacon (Lp 2B 10 sec 8 m, international No. G 0267)
- Saubara Beacon (Lp B 5 sec 8 m, international No. G 0268)
- Paraguaçu Beacon (Lp B 6 sec 7 m, international No. G 0269)
- Morro de São Paulo Lighthouse (Lp B 15 sec, international No. G 0274)

5.3.7.3 Sunken wrecks

- Bearing 212°, at a distance of 4.4 miles from Garcia d'Ávila Lighthouse
- Bearing 170°, at a distance of 2.9 miles from Santo Antônio Lighthouse
- Bearing 185°, at a distance of 5.0 miles from Garcia d'Ávila Lighthouse
- Bearing 218°, at a distance of 300 meters from Santo Antônio Lighthouse
- Bearing 291°, at a distance of 500 meters from Santo Antônio Lighthouse

5.3.7.4 Rocky ledges, banks, crowns and others in the bay and access channel

- Banco da Panela – Extensive sandy underwater ledge, between the bearings 245° and 009°, at distances of 0.2 to 0.9 mile from the Quebra-Mar Sul Lighthouse, minimum depth of 4.4 meters. This bank is demarcated to the S by a green light buoy, and to the W and N, by red light buoys. About 1,100 meters southwest of the southern breakwater end, there is a tapered light buoy painted green, which exhibits a green flash at every 3 seconds, and is equipped with a radar reflector that demarcates the southwestern end of Banco da Panela. About 1,650 meters west of the southern breakwater end, there is a red tapered buoy, which exhibits a red flash every 1 second, demarcating the western end of Banco da Panela with radar reflector. About 1,100 meters north-northeast of the southern breakwater end, there is a red tapered light buoy, which exhibits a red flash at every 3 seconds, near and to the south of the southern end of the north breakwater (isolated), with a depth of 9.8 meters (32 feet), demarcating the northern end of Banco da Panela.
- Extensive underwater ledges (stones, sand, shells and gravel), enveloping the Maré Island, with the S limit bearing 115°, at a distance of 1.4 mile from the beacon No. 1 in the Madre de Deus channel, with a depth of less than 5 meters, and exhibiting, near the island, reefs and crowns that emerge during low tide.
- Underwater Ledge (gravel and stone), between bearings 078° and 144°, at distances of 0.2 to 0.6 mile from the beacon No. 1 in the Madre de Deus channel, minimum depth of 2.9 meters.
- Rocky ledge, beacon signaled by the beacon No. 1 in the Madre de Deus channel, minimum depth of 3.5 meters.

- Rocky ledge, near the beacons. 2 and 4, to the W, minimum depth of 3 meters.
- Underwater Ledges of scattered stone, gravel and mud, bearing 211° to 294°, at distances of 0.2 to 1.6 mile from the beacon No. 6 in the Madre de Deus channel. All of them less than 5 meters deep.
- Underwater Ledge of sand, gravel, stone and mud, enveloping the Frade Island, with E limit bearing 067°, at a distance of 2.0 miles from the Frade Island beacon, and S limit bearing 180°, at a distance of 0.7 mile from the Ilha do Frade beacon. Depths less than 5.4 meters, with reefs that submerge and emerge.
- Rocky ledge, which involves the W and N sections of Maré Island and the Mataripe River mouth. Its extreme S bears 078°, at a distance of 1.3 mile from the beacon No. 9 in the Madre de Deus channel, with a depth of less than 5 meters, where the Tapitanga Grande and Tapitanga Mirim reefs submerge and emerge.
- Extensive underwater ledges of stone and gravel, limited by the alignment between the beacons No. 12 and 14 in the Madre de Deus channel, where the minimum depth is 2.5 meters.
- Underwater Ledge of stones, sand, gravel and mud, involving the S part of Madre de Deus Island, demarcated by the beacon No. 11 and 13 in the Madre de Deus channel, with depth less than 5 meters, and reefs that emerge at low tide.
- Gravel underwater ledge, bearing 132°, at a distance of 0.1 mile from the beacon No. 14 in the Madre de Deus channel, and a depth of 3.8 meters.
- Extensive rocky ledge, bearing 093° and 117°, at distances of 0.2 to 0.4 mile from Ponta do Trapiche, at N of Bom Jesus Island, with minimum depth of 3.8 meters. Beacon signaled with buoy.
- Extensive rocky ledge, bearing 039° and 047°, at a minimum distance of 0.4 mile from Ponta do Trapiche, to the N of Bom Jesus Island, minimum depth of 1.9 meter. Signaled with a beacon.
- Underwater Ledge of mud and gravel, involving Capeta Island, with its S limit bearing 026°, at half mile from Ponta do Trapiche, to the N of Bom Jesus Island, with reefs that submerge and emerge, and depths of less than 5 meters.
- Coroa de Manguinhos – Bearing 278° and 297°, at a distance of 0.4 to 0.5 mile from the Trapiche da Ilha do Bom Jesus, which submerges and emerges.
- Coroa Grande – Bearing 256° and 289°, at distances of 0.6 to 0.7 mile from the Trapiche da Ilha do Bom Jesus, which submerges and emerges.

- Extensive rocky ledge, bearing 291° and 308°, at distances of 0.6 to 1.0 mile from the Trapiche da Ilha do Bom Jesus, and minimum depth of 1.0 meter.
- Coroa da Sardinha – Bearing 115° and 141°, at distances of 0.4 to 0.9 mile from the Ouréis lighthouse. Submerges and emerges.
- Recife de Ouréis – Reef with its SE end bearing 158°, at a distance of 1.6 mile from the Ouréis beacon. Submerges and emerges, and is beacon signaled to the N with buoy.
- Extensive mud ledge, involving the NW section of the Vacas Island, with its NW end bearing 179°, at a distance of 1.4 mile from the Ouréis beacon, and depths of less than 4 meters.
- Extensive underwater ledge, bearing 285° and 301°, at distances of 0.5 to 0.8 mile from the Ouréis beacon, and a minimum depth of 2.5 meters.
- Laje da Ipeba – Bearing 017° and 050°, at distances of 1.1 to 1.8 mile from the Saubara beacon. Submerges and emerges.
- Underwater Ledge of mud and coral, with many reefs, involving the Bom Jesus and Santo Antonio islands, with depths of less than 5 meters.

5.3.8 Beacon signaling of the access channel

Access to Temadre is via a channel with illuminated beacon, which starts at bearing 12° 49.02' S and 038° 33.91' W, and ends in the evolution basin in front of the pier.

This channel is 6 miles long, and its minimum width is 200 meters, signaled by:

- articulated buoys, numbered from 1 to 17, red (starboard) and green (port side);
- special articulated amber buoys, numbered from 3 to 5, indicating escape areas for emergency maneuvers;
- special articulated amber buoys, numbers 1 and 2, which indicate the auxiliary side channel, with depth of 10.5 meters.



The access channel has minimum depth of 14.5 meters (in the section dredged in 2001), between the beacons 7/8 and 10/11.

Beacon signaling in the Access Channel to Temadre

Nautical signal	Latitude	Longitude	Light Features	Indication (Navigable Channel)
BL N° 1	12° 49,02' S	038° 33,91' W	Lp (E) 3s E.1,0-Ecl.2,0	Lateral starboard
BL N° 2	12° 49,11' S	038° 34,19' W	Lp (V) 3s V.1,0-Ecl.2,0	Lateral port side
BL N° 3	12° 48,55' S	038° 34,14' W	Lp (E) 3s E.0,5-Ecl.2,5	Lateral starboard
BL N° 4	12° 48,63' S	038° 34,32' W	Lp (V) 3s V.0,5-Ecl.2,5	Lateral port side
BL N° 5	12° 47,79' S	038° 34,52' W	Lp (E) 3s E.0,5-Ecl.2,5	Lateral starboard
BL N° 6	12° 47,81' S	038° 34,68' W	Lp (V) 3s V.0,5-Ecl.2,5	Lateral port side
BL N° 7	12° 47,05' S	038° 34,91' W	Lp (E) 6s E.0,5-Ecl.5,5	Lateral starboard
BL N° 8	12° 47,11' S	038° 35,01' W	Lp (V) 6s V.0,5-Ecl.5,5	Lateral port side
BL N° 9	12° 46,52' S	038° 35,29' W	Lp (E) 3s E.0,5-Ecl.2,5	Lateral starboard
BL N° 10	12° 46,18' S	038° 35,71' W	Lp (V) 6s V.0,5-Ecl.5,5	Lateral port side
BL N° 11	12° 46,08' S	038° 35,62' W	Lp (E) 3s E.0,5-Ecl.2,5	Lateral starboard
BL N° 12	12° 45,45' S	038° 36,70' W	Lp (V) 3s V.0,5-Ecl.2,5	Lateral port side
BL N° 13	12° 45,36' S	038° 36,34' W	Lp (E) 3s E.0,3-Ecl.2,7	Lateral starboard
BL N° 14	12° 45,40' S	038° 37,15' W	Lp (V) 3s V.0,5-Ecl.2,5	Lateral port side
BL N° 15	12° 45,25' S	038° 37,04' W	Lp (E) 3s E.0,5-Ecl.2,5	Lateral starboard
BL N° 16	12° 45,38' S	038° 37,54' W	Lp (V) 3s V.0,5-Ecl.2,5	Lateral port side
BL N° 17	12° 45,27' S	038° 37,31' W	Lp (E) 3s E.0,3-Ecl.2,7	Lateral starboard
BL N° 1	12° 47,13' S	038° 35,06' W	Lp (A) 3s A.0,5-Ecl.2,5	Special beacon
BL N° 2	12° 46,21' S	038° 35,78' W	Lp (A) 3s A.0,5-Ecl.2,5	Special beacon
BL N° 3	12° 45,86' S	038° 36,39' W	Lp (A) 3s A.0,5-Ecl.2,5	Special beacon
BL N° 4	12° 45,25' S	038° 38,20' W	Lp (A) 3s A.0,5-Ecl.2,5	Special beacon
BL N° 5	12° 45,10' S	038° 38,27' W	Lp (A) 3s A.0,5-Ecl.2,5	Special beacon

Notes: (a) Beacon as per "Radio Warning" in force in pages 17 and 18 of brochure No. 12, of 30/06/2004. (b) Refer to nautical charts 1101, 1103, 1104 and 1105 from DHN. (c) Beacons shown in blue color represent access channel demarcation.

5.4 Environmental Factors

5.4.1 Winds

Prevailing winds blow from E in January, February, March, May, September, November and December, and from ESE in April, June, July, August and October. Southern winds usually blow during new and full moon periods, rippling the bay waters. Sometimes, in August and September, the winds blow at speeds over 2.4 m/sec. In the other months, the wind speed ranges from 1.6 to 2.4 m/sec.

5.4.2 Waves

There are no records of waves capable of affecting the ship berthing, unberthing and operating maneuvers.

5.4.3 Rainfall

The average pluviometric rate of the region is approximately between 82 mm and 2,414 mm. The average annual rate is approximately 2,174 mm.

The passage of occasional cold fronts produces winds from NE to SW, in a counterclockwise direction, with fresh gusts, which may become very strong; continuous nimbus-stratus rains and with cumulus-nimbus thunderstorms; sudden and pronounced pressure increase, after the pre-frontal decline; drop, occasionally pronounced of the air temperature.

5.4.4 Visibility

Intermittent rain occurs during winter, and the visibility may be considered from regular to good.

Fog rarely occurs, but sometimes, the smoke from the plants in the Centro Industrial de Aratu impairs the visibility.

5.4.5 Tides and currents

Tides at Todos os Santos Bay have semi-daily characteristics. In the Terminal access channel, the current reaches speed up to 4 knots. The east winds prevail with influence on the maneuvers, especially for unloaded ships.

At the Terminal, the average sea level remains 151 cm over the reduction level in the chart. In the rainy season, falling tide may exceed the values mentioned. See tide tables from DHN.

5.4.6 Salinity

The average salinity of the seawater is 35.5 ppm, with small seasonal variations. The highest average value found on the Northeastern coast, in the latitudes 26° S to 32° S, is 37.2 ppm.

5.4.7 Density

The average density of the seawater ranges from 1,022 to 1,025.

5.4.8 Atmospheric pressure

The local atmospheric pressure oscillates around 1,006.8 mb in the summer, and 1,010.6 mb in the winter.

5.4.9 Air humidity

The relative air humidity is high, ranging from 79 to 85%. The average relative air humidity is of 82% throughout the year.

5.4.10 Temperatures

From November to April, the temperatures range from 23 °C (73.4 °F) to 30 °C (86.0 °F). From May to October, the temperatures range from 22 °C (71.6 °F) to 27 °C (80.6 °F).

5.5 Navigation Restrictions in the Access Channel

5.5.1 Maximum navigation speed

Near beacons 7 and 8, the maneuvering speed should not exceed 6 knots at the bottom, and the ship should not exhibit its band.

5.5.2 Draft

The traffic in the access channel to Temadre, according to dredging carried in 2001, is certified to a depth of 14.5 meters. Such depth is found in the region demarcated by the beacons 7, 8, 10 and 11. In the other areas, the minimum depth of the access channel is 15 meters.

5.5.3 Maximum recommended draft (CMR)

When required, the CMR for passing between the beacons 7 and 8 is defined by the formula:

$$CMR = (P + M) - (P + M) \times FS$$

Where:

P = local depth, reduced to the reduction level

M = tidal height at time of passing (1.5 hour before flood tide)

FS = safety factor decimal (11,6%), as per NPCP standard

When calculating the maximum draft, the tidal reduction factor of 0.85% is already factored in, where passing the beacons 7 and 8, 1.5 hour before flood tide is concerned.

Summary Chart

Pier	Speed (knots)	CMR (meters)			Max. Ship Length	TPB/DWT Max.
		Minimum	Nominal	Length		
Access channel	6 – 8 (a)	13.0 (b)	14.2	15.2 (c)	No restrictions	130,000 (d)
Evolution basin	4	No restrictions			No restrictions	130,000
Mooring berth	According to the berthing speed and angle table item 5.6.6	According to the berth physical details table (item 6.2)				

Notes:

- (a) Ships approaching the Terminal with draft over 13.5 meters, must navigate at maximum speed of 6 knots when crossing the beacon set 7/8. in the anchorage area-beacons 7/8 section, they may navigate with maximum speed of 8 knots.
- (b) Draft established taking into account the lowest tide.
- (c) As per CMR calculation.
- (d) Ships whose size exceeds that defined in this table may berth after prior evaluation of the displacement, maximum draft and mooring resources at the pier.

5.5.4 Relation between maximum draft at the access channel and forecasted flood tide

Flood tide (m)	Maximum Draft (m)
1.8	14.2
1.9	14.2
2.0	14.3
2.1	14.4
2.2	14.5
2.3	14.5
2.4	14.6
2.5	14.7
2.6	14.8
2.7	14.8
2.8	14.9
2.9	15.0
3.0	15.1
3.1	15.1
3.2	15.2

Notes:

- (a) The approach of ships with draft over 14.20 meters up to 15.20 meters may be authorized bearing in mind the maximum draft recommended (CMR) calculation. The relevant requests must be made in advance to the port captains.
- (b) Other operational restrictions, agreed with the maritime authority, must be observed (night navigation, etc.).

5.6 Areas for Ship Maneuvers

5.6.1 Underwater ledges, banks, crowns and others in the evolution basin

Baixio de Madre de Deus – Rocky ledge, near the Port of Madre de Deus, in the position Lat. 12° 44' 86" S – Long. 38° 37' 59" W, with depth of 5.8 meters (G 0262 Lp {2 + 1} V.12 sec). Buoy with radar reflector.

Baixio do Bom Jesus (or do Marinheiro) – It is demarcated at its extreme eastern end by green light buoy (Lp V.3 sec). This is a rocky ledge at 1,000 meters to west-southwest of the northern end of Bom Jesus Island, in Lat. 12° 45' 42" S – Long. 38° 37' 95" W.

Baixio do Capeta is demarcated by a buoy with black and red horizontal stripes (G 0262.3 GR. Lp {2} B 6 sec), equipped with radar reflector. Located at 800 meters to northeast of the northern end of Bom Jesus Island, in the southeast part of a series of ledges with 1.8 meter (6 feet) of depth, existing in the end of a bank that extends itself to southeast of Vacas Island, Lat. 12° 45' 42" S – Long. 38° 38' 05" W.

5.6.2 Evolution basin beacon signaling

It is the commandant's responsibility to require the pilot to carry out the ship maneuvers within the evolution basin limits. The ships must use the basin for turning and berthing by the port side, at PP-1, PP-2 and PP-4.

Demarcated by the 10-m isobathic line, the evolution basin near the Terminal facilities is defined by three points, signaled by light buoys.

Beacons at the Temadre's Evolution Basin

Nautical Signal	Latitude	Longitude	Light Features	Indication (Navigable Channel)
Baixio de Bom Jesus	12° 45,38' S	038° 37,92' W	Lp (V) 3s V.0,3-Ecl.2,7	Lateral port side
Baixio do Capeta	12° 45,02' S	038° 38,05' W	Lp (V) 3s	Nº international G0262.3
Baixio de Madre de Deus	12° 44,86' S	038° 37,59' W	Lp (V) 12s	Nº international G0262

5.6.3 Depth control

At Temadre, the draft limit for berthing and unberthing does not change throughout the year. The points that limit the maximum draft in the access channel and the berthing maneuvers at the Terminal are described in the nautical charts.

5.6.4 Maximum dimensions

Maximum deadweight tonnage of vessels berthing at Temadre is 120,000 DWT for berthing at PP-1, PP-2 and PP-4, 31,000 DWT at PP-3 (main piers), and 10,000 DWT at PS-1 (secondary pier). As described in the NPCP (Harbor Master Rules and Procedures), on the web site <http://www.cpba.mar.mil.br>, berthing of ships with maximum displacement of 130,000 tonnes is also permitted.

5.6.5 Winds and currents

Berthing or unberthing limitations: winds < 20 knots and currents < 4 knots. The limiting values and the tide direction (rising or falling) for berthing or unberthing are based on the conditions in each berth.

Operating maintenance limitations (when berthed): winds < 35 knots.

5.6.6 Berthing speed and angle

Are limited by the absorption capacity of the defenses and the pier structure. At PP-1 and PP-4, a laser system for monitoring the berthing speed and angle is available for the captain and pilot in the maneuvers.

The monitoring system is comprised of two laser beam emitters, installed in the lowest part of each platform. It enables tracking the approach speed to the defense, the angle formed between bow and stern (in relation to the ship's axis), and the distance between the vessel and the defense. Wind and current speeds are also tracked. The data gathered by the sensors are passed simultaneously to a central processing system and to a luminous display located on each pier, and to the pilot's pager.

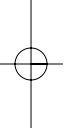
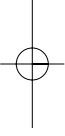
The processing system will alarm when the approaching speed exceeds the maximum value allowed. The alarm sounds in the pilot's pager, and also, on the luminous display installed on the respective pier.

Berthing Speed Limit

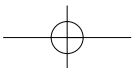
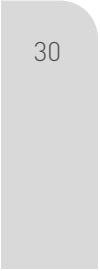
Distance NT vs. Defenses (m)	Speed Limit (cm/sec)		
	Very High	High	Allowed
150 – 90	70	50	15
80 – 120	60	40	12
40 – 80	20	15	10
0 – 40	13	8	5

continue

Luminous Display Indication	Situation	Action Recommended to the Captain
Green	Approach speed suitable for the distance between ship and defense, by bow or stern.	Resume the berthing maneuver, by controlling the berthing position and speed, within the limits established in this procedure.
Yellow	Approach speed exceeds the recommended speed for the distance between ship and defense, by bow or stern.	Reduce the approach speed via tug action. When there is no safety assurance for the maneuver, the captain must abort it.
Red	Excessive approach speed for the distance between ship and defense, by bow or stern.	Reduce the approach speed via safety assurance for the maneuver, the captain must abort it.



PORT INFORMATION



DESCRIPTION OF THE TERMINAL

6.1 General Description

The Terminal was constructed in 1956, and since then, is the major point for handling the production flow from the Mataripe Refinery (RLAM), whose oil by-products supply the Northern and Northeastern regions of the country. It has a installed storage capacity of approximately 656,690 m³ for oil-byproducts, alcohol and LPG.

Receiving about 55 ships and the equivalent number of barges per month, the Terminal handles a volume of 1.8 million m³ of oil and by-products, in loading and discharging operations.

At the northern end of the bridge, PP-2 and PP-3 are situated in parallel. At a quarter of the southeast position, at the other end, there is PP-4. Between the bridge ends, there is PP-1. There is a smaller bridge to the west, where PS-1 and PS-2 are installed in parallel. These are secondary piers designated for LPG ships up to 10,000 DWT and small vessels up to 2,000, respectively.

Part of the naphtha to be used in the Pólo Petroquímico de Camaçari goes through Temadre, in addition to 80% of the oil consumed by RLAM, which after being transformed into by-products, such as, diesel, gasoline, paraffin, lubricants and fuels, is returned to the Terminal, and carried by ships to the Northern and Northeastern regions, and occasionally, to the Southeastern region of the country. Paraffin, gasoline and fuel oils are exported to Europe and USA. Sugar cane alcohol is stored at the Terminal and then forwarded to the

distribution companies that support the States of Bahia and Sergipe. A loading station installed at the Terminal can receive trucks for to be loaded with paraffin and lubricants.

The Terminal also operates a multi-purpose pipeline that extends for about 389 kilometers, pumping gasoline, diesel, LPG and alcohol to the cities of Itabuna and Jequié, in the Recôncavo Sul region of Bahia; from there, these products are transported to consumers in the southern and western regions of Bahia, northern region of Espírito Santo and northeastern region of Minas Gerais.

Temadre can also count on a complete system for fostering the demands for supplies of ships heading to Salvador, by means of small self-propelled vessels. It also supplies all types of MF (Marine Fuel Oil) and MGO (Marine Gas Oil), when requested in advance, via pipeline in the very Terminal.

6.2 Physical Details of the Berths

The table below presents the characteristics of the mooring berths at the Terminal .

Pier	Distance between Fenders (m)	Berth Depth (m)	Maximum Ship Length for Berthing Day/Night (m)	Maximum Displacement (tonnes)	DWT Max.	Products
PP-1	90	13.0	275 / 240	130,000	120,000	Oil, by-products and LPG
PP-2	70	13.0	275 / 240	130,000	120,000	Oil, by-products and paraffin
PP-3	70	10.5	176 / 162	31,000	31,000	Oil, by-products and paraffin
PP-4	80	22.0	275 / 240	130,000	120,000	Oil and dark by-products
PS-1	35	7.8	145	10,000	10,000	LPG and bunker

6.3 Berthing and Mooring Arrangements

6.3.1 Berthing and unberthing table at Temadre

See table on the next pages.

Berthing and Unberthing Table at Temadre

Pier	Docking Side	Period	draft (m)	Wind (knots)	Length (m)	Conditions		Tug
						Maximum DWT	Tide	
PP-1	Berthing	Daytime	up to 12.20	up to 20	275	120,000	Full	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	275	120,000	Slack water { 1 }	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	240	120,000	Full	Minimum 2 azimuthals
	Starboard	Daytime	up to 12.20	up to 20	240	120,000	Slack water { 1 }	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	275	120,000	Falling	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	275	120,000	Slack water { 2 }	Minimum 2 azimuthals
PP-2	Berthing	Daytime	up to 12.20	up to 20	240	120,000	Falling	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	240	120,000	Slack water { 2 }	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	275	120,000	Any	Minimum 2 azimuthals
	Starboard	Daytime	up to 12.20	up to 20	275	120,000	Any	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	275	120,000	{ 3 }	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	240	120,000	{ 3 }	Minimum 2 azimuthals
Unberthing	Port	Daytime	up to 12.20	up to 20	240	120,000	Full	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	240	120,000	Slack water { 1 }	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	240	120,000	Falling	Minimum 2 azimuthals
	Starboard	Daytime	up to 12.20	up to 20	240	120,000	Slack water { 2 }	Minimum 2 azimuthals
		Night-time	12.20 to 12.50	up to 20	240	120,000	Any	Minimum 2 azimuthals
		Daytime	up to 12.20	up to 20	240	120,000	Raise	Minimum 2 azimuthals

Notes: (a) Consider pilot onboard (POB) as the time when maneuvers begin ; (b) Trial maneuvers at Temadre approved by CPBa on 05/08/04. *continue*

Conventions:

{1} Leaves Salvador: 3 hours before the flood tide, or 2 hours before low tide (anchor up); {2} Leaves Salvador 3.5 hours before low tide, or 2 hours before flood tide (anchor up) e {3} Starts maneuver 2 hours before low tide until flood tide.

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Berthing and Unberthing Table at Temadre (continuation)

Pier	Docking Side	Period	draft (m)	Wind (knots)	Length (m)	Conditions		Tug
						Maximum DWT	Tide	
PP-3	Starboard	Daytime	10,20	up to 20	176	31.000	Flood	Minimum 1 azimuthal
		Night-time	10,20	up to 20	162	31.000	Flood	
	Starboard	Daytime	10,20	up to 20	176	31.000	Flood	Minimum 1 azimuthal NT < 162 m
		Night-time	10,20	up to 20	176	31.000	Flood	
PP-4	Port	Daytime	13,50	20 knots 15 knots Draft NT > 12,2 m	275	120.000	Slack Water (4)	Minimum 2 azimuthals
		Daytime	13,50	20 knots 15 knots Draft NT > 12,2 m	275	120.000	Slack Water (2)	
	Port	Night-time	Até 12,50	20 knots 15 knots Draft NT > 12,2 m	240	120.000	Slack Water (4)	Minimum 3 azimuthals
	Starboard	Night-time	Até 12,50	20 knots 15 knots Draft NT > 12,2 m	240	120.000	Slack Water (2)	Minimum 3 azimuthals
Unberthing	Port	Daytime and Night-time	13,50	20 knots 15 knots Draft NT > 12,2 m	275	120.000	Any	Minimum 2 azimuthals
		Daytime	12,20-13,50	20 knots 15 knots	Up to 190	120.000	Any	Minimum 2 azimuthals
	Starboard	Daytime	12,20-13,50	20 knots 15 knots Draft NT > 12,2 m	275		(3)	Minimum 3 azimuthals

Notes:
(a) Consider pilot onboard (POB) as the time when maneuvers begin ; (b) Trial maneuvers at Temadre approved by CPBa on 05/08/04. *continue*

Conventions:

(1) Leaves Salvador 3 hours before the flood tide, or 2 hours before low tide (anchor up); (2) Leaves Salvador 3.5 hours before low tide, or 2 hours before flood tide (anchor up); (3) Starts maneuver 2 hours before low tide until flood tide and (4) Leaves Salvador 3.5 hours before flood tide, or 2.5 hours before low tide (anchor up).

6.3.2 Criteria for using the tugs

Berth	Vessel	Berthing (A) Unberthing (D)	Minimum No. of Tugs	Criteria
PS-1	up to 4,000 TPB	A and D	1	(1)
	over 4,000 TPB	A and D	2	(1)
PP-1	up to 35,000 TPB	A and D	2	(1) (3)
	15,000 to 35,000 TPB	D in falling tide	3	(1) (3)
	35,001 to 60,000 TPB	A and D	3	(1) (3)
	Over 60,000 TPB	A and D	4	(1) (3) (6)
PP-2	Up to 35,000 TPB	A and D	2	(1) (3)
	DWT	D	3	(1) (3)
	35,001 to 60,000 TPB	A and D	3	(1) (3)
	Over 60,000 TPB	A and D	4	(1) (3) (6)
PP-3	Up to 3,000 TPB	A	2	(1)
	Up to 3,000 TPB	D	1	(1)
	3,000 to 15,000 TPB	A and D	2	(1) (3)
	15,001 to 25,000 TPB	A and D	3 or 4 (*)	(1) (3) (7)
	25,001 to 31,000 TPB	A and D	3 or 4 (*)	(2) (3) (7)
PP-4	Up to 20,000 TPB	A	3	(2) (3) (8)
	20,001 to 35,000 TPB	A	4	(2) (3) (8)
	Over 35,000 TPB	A	4	(2) (3) (5) (6) (8)
	Up to 20,000 TPB	D	2	(1) (3) (8)
	20,001 to 35,000 TPB	D	3	(1) (3) (8)
	35,000 TPB to 44,000 TPB	D	3	(1) (3) (4) (8)
	44,001 to 60,000 TPB	D	3	(1) (3) (4) (8)
	Over 60,000 TPB	D	4	(1) (3) (4) (6)

Conventions:

- (1) At least one tug must have two shafts.
 - (2) At least two tugs must have two shafts.
 - (3) Each tug must have more than 15 tonnes of bollard-pull.
 - (4) The sum of the tugs' bollard-pulls should not be less than 60 tonnes.
 - (5) The sum of the tugs' bollard-pulls should not be less than 70 tonnes.
 - (6) When maneuvering ships with more than 60,000 DWT, three azimuthal tugs must preferably be used.
 - (7) At PP-3: preferably one of the tugs must be azimuthal.
 - (8) At PP-4: two azimuthal tugs must preferably be used in the berthing or unberthing maneuvers.
- (*) For berthing or unberthing ships with DWT over 20,000, the maneuver must be carried out with three tugs, in cases where two azimuthal tugs are scheduled. When scheduling only one azimuthal tug, four tugs must be used.

6.3.3 Vessels moving in the channel

Two ships may not cross each other along the entire channel extension.

An interval of one hour is required between a ship unberthing from Madre de Deus and the one approaching from the anchorage area.

An interval of two hours is required where two ships are travelling from Salvador up to Madre de Deus.

An interval of thirty minutes is required where two ships leave consecutively from the Terminal.

The movement of vessels along the access channel, contracted by the Terminal for carrying bunker, must be communicated in advance to, and receive prior approval from the pilotage [via radio].

6.3.4 Recommended mooring

Every ship heading to Temadre must be able to execute the mooring as described below. A safe mooring is the responsibility of the ship's commandant and will be evaluated by a qualified safety inspector. Temadre may deny or interrupt an operation in which the ship mooring is considered unsatisfactory. The minimum mooring configuration is shown below.

Pier	Tanker	Bow			Stern		
		Line	Breast Line	Spring Line	Line	Breast line	Spring Line
PP-1	NT LPG (any)						
	Berthing by Port Side	4	2	2	4	3	3
	Berthing by Starboard	4	3	2	4	2	3
	NT < 35,000 DWT						
	Berthing by Port Side	4	2	2	4	4	2
	Berthing by Starboard	4	3	2	4	2	3
	NT > 35,000 DWT						
	Berthing by Port Side	4	2	2	4	4	3
PP-2	NT < 35,000 DWT						
	Berthing by Port Side	3	2	2	4	2	2
	Berthing by Starboard	3	2	2	4	2	2
	NT > 35,000 DWT						
	Berthing by Port Side	4	2	2	4	3	3
PP-3	NT < 5,000 DWT						
	Berthing by Starboard	2	2	2	2	2	2
	NT < 31,000 DWT						
	Berthing by Starboard	4	x	3	4	2	2

continue

Pier	Tanker	Bow			Stern		
		Line	Breast Line	Spring Line	Line	Breast line	Spring Line
PP-4	NT < 35,000 DWT						
	Berthing by Port Side	4	2	2	4	2	3
	Berthing by Starboard	4	2	3	4	2	3
	NT > 35,000 DWT						
	Berthing by Port Side	4	2	2	4	3	3
	Berthing by Starboard	4	3	3	4	3	3
PS-1	Bunker NT	2	2	2	2	2	2
	LPG NT	3	2	2	3	2	2

6.3.5 Positioning the escape hooks and mooring bollards

Pier	Dolphin	Bollards / Escape Hooks	Number of lines	Maximum Loads (tonnes each)
PP-1	3	3 bollards (with 2 steel wires)	8	200
	4	3 bollards	12	200
	10	2 bollards (with 6 steel hooks)	8	150
	17	4 escape hooks	8	110
PP-2 and PP-3	5	3 bollards (with 7 steel hooks)	12	200
	6	4 bollards	16	200
	7	5 bollards (with 1 steel hook)	20	200
	8	2 bollards (with 6 steel hooks)	6	200
PP-4	11	3 escape hooks	6	40
	12	3 escape hooks	6	100
	13	2 escape hooks	4	60
	14	2 escape hooks	4	60
	15	3 escape hooks	6	100
	16	3 escape hooks	6	40
PS-1	1	2 bollards	4	100
	2	2 bollards	4	100
	9	1 bollard	3	100
	Buoy 1	1 bollard	3	40
	Buoy 2	1 bollard	3	40

6.4 Berth Features for Loading, Discharging and Bunker

The table on the next page indicates the products moved, arms available, flange details, thresholds for temperature, flow rates and maximum loading/discharging pressures.

Such information is given for information purposes only, and is based on maximum historical values. It is necessary to define the operating conditions (arms, manifolds, number of lines, number of pumps, pressure, flow and temperature) during the initial ship release.

The loading arm positioning is shown in the Appendix C (Distribution of the Loading Arms at Every Berth).

The operations for supplying bunker using hoses are not shown on these tables.

Pier	Arms		Arm Flanges		Product	Temperature		Max. Flowrate (m ³ /h)	Max. Pressure (kgf/cm ²)
	TAG	Position	Diameter (inches)	Class (pound/in)		Min. (°C)	Max. (°C)		
PP-1	BC-0211 A/B BC-0212 A	1, 2 e 3	8	150	Naphtha	Amb	Amb	2,800 (D)	10
					Alcohol	Amb	Amb	600 (D)	10
					Gasoline	Amb	Amb	1,100 (C) 1,100 (D)	10
					QAV-1	Amb	Amb	850 (C) 600 (D)	10
					MGO	Amb	Amb	200 (C)	10
					PNL/PNM	Amb	Amb	250 (C)	10
					PBS	Amb	Amb	200 (C)	10
					Diesel	Amb	Amb	1,300 (C) 1,000 (D)	10
	BC0212 B/C	4 e 5	12	150	Oil	15	60	6,000 (D)	10
					Marine fuel	25	90	400 (C) 800 (D)	10
					OC	25	90	2,200 (C)	10
					Slop	15	60	500 (C) 500 (D)	10
	JF-102	6	10	150	Cooled LPG	-40	5	1,500 (C) 800 (D)	16
	JF-101	7	8	150	Cooled LPG	-40	5	1,500 (C) 800 (D)	16
	PP-2	BC-0221 A/B	1 e 2	12	150	Oil	15	60	3,500 (D)
Marine fuel						25	90	400 (C) 800 (D)	10
OC						25	90	2,200 (C)	10
Slop						15	60	500 (C) 500 (D)	10

continue

Pier	Arms		Arm Flanges		Product	Temperature		Max. Flowrate (m ³ /h)	Max. Pressure (kgf/cm ²)					
	TAG	Position	Diameter (inches)	Class (pound/in)		Min. (°C)	Max. (°C)							
	BC-0222 A/B/C	3, 4 e 5	12, 8	150	Naphtha	Amb	Amb	2,800 (D)	10					
					Alcohol	Amb	Amb	310 (D)	10					
					Gasoline	Amb	Amb	1,100 (C) 1,100 (D)	10					
					MGO	Amb	Amb	200 (C)	10					
					QAV-1	Amb	Amb	850 (C)	10					
					PNL/PNM	Amb	Amb	250 (C)	10					
					PBS	Amb	Amb	200 (C)	10					
					Diesel	Amb	Amb	1,300 (C) 1,000 (D)	10					
PPP-3	BC-0231 A/B	1, 2 e 3	8	150 10	Nafta	Amb	Amb	2,800 (D)	10					
					Alcohol	Amb	Amb	313 (D)	10					
					Gasoline	Amb	Amb	1,100 (C) 1,100 (D)	10					
					QAV-1	Amb	Amb	850 (C)	10					
					PNL/PNM	Amb	Amb	250 (C)	10					
					PBS	Amb	Amb	200 (C)	10					
					MGO	Amb	Amb	200 (C)	10					
					Diesel	Amb	Amb	1,300 (C) 1,000 (D)	10					
	BC-0232B	4	10	150	Oil	15	60	6,000 (D)	10					
					Marine fuel	25	90	400 (C) 800 (D)	10					
					OC	25	90	2,200 (C)	10					
					Slop	15	60	500 (C) 500 (D)	10					
					PP-4	BC-0241	1	6	150	MGO	Amb	Amb	200 (C)	10
					BC-0243 A/B/C	2, 3 and 4	16	150	Oil	15	60	6,000 (D)	10	
Marine fuel	25	90	400 (C) 800 (D)	10										
OC	25	90	2,200 (C)	10										
Slop	15	60	500 (C) 500 (D)	10										
BC-0242	5	8	150	Marine fuel	25	90	400 (C) 800 (D)	10						
PS-1	BC- 0201	1	6	150	MF	15	60	400 (C) 800 (D)	10					
	BC- 0202	2	4	150	MGO	Amb	Amb	200 (C)	10					
	JF-104	3 and 4	8	150	GLP REF/PRES	-40	35	1,000 (C) 800 (D)	16					
	JF-103			150	GLP REF/PRES	-40	35	1,000 (C) 800 (D)	16					

6.5 Berthing and Laytime Management and Control

Ship berthing and unberthing maneuvers at the Marine Terminal of Madre de Deus must always be carried with the assistance from a qualified pilot, and using a number of tugs with the traction capacity herein specified.

The ship turning maneuvers, whenever required, must occur within the evolution basin limits, and turning in front of the piers is forbidden.

All the maneuvers are watched and recorded by the shift supervisor via moving cameras in a closed TV circuit.

During berthing, an operational Safety Inspector (Giaont) and an operator remain on the pier in such a position as to evaluate the maneuver and guide the positioning of the ship in relation to the loading arms. A mooring team of is available for placing the mooring lines in the bollards and slip hooks.

On each pier there is an operator in charge of the operational tracking, for exchanging information with the ship, for communications, preparing documentation, and monitoring the berthing and position of the ship. This operator has a VHF radio (channels 6 and 9) for simultaneous communication with the ship and the control room.

6.6 Main Risks to Berthing and Laytime

The weather conditions in the access channel, evolution basin and berthing piers are usually very favorable and safe for navigation, maneuver and laytime.

The major risks associated with the maneuvers and laytime of ships at the Temadre berths are:

- When berthed at PP-1, given the strong currents during falling tides, in the bows of berthed ships may open. With higher tides (over 2.6 meters), it is recommended reinforcing/increasing the number of breast lines to, at least, four;
- When berthing at PP-4, given the strong currents and winds, berthing at speeds in excess of the operating limit of the defenses may occur, thus causing damages to the ship and Terminal facilities;
- The risk described above may also occur at PP-1, under the same weather conditions and with similar damage.

The risks described require greater attention from the crew and pilots on the ships as far as the works and mooring lines are concerned.

PROCEDURES

During the ship laytime at the port, various steps are taken to render operations safe and manage the risks in such a manner as to minimize them, as described in the sub-items below, measures are taken whose aim is to facilitate the operations and plan them adequately.

7.1 Before Arrival

When the ship is berthing, and the operation Safety Inspector (Giaont) has carried out his inspection based on the Isgott's Safety Checklist, the ship will not be authorized to start its operation at the Terminal if there are pending items still not solved by the crew.

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

Ships heading to the Temadre facilities must indicate their estimated time of arrival (ETA) 72 and 48 hours in advance, directly to the respective agent. Changes to or confirmation of the ship's arrival shall be communicated at least 24 hours in advance. (coordinated universal time).

7.2 Arrival

The port authorities are brought into play by the ships' agents according to the arrival and berthing schedule. The visit normally occurs after the ship has berthed.

The bunker supply requests must be forwarded, via the agent, to UN-Bunker.

The information from the Terminal to the ship, and vice-versa, are described in the Appendices "D" and "E", respectively.

The list of key telephone numbers in the port is shown below.

Harbor Master of Bahia

(55 71) 3241-1373, 3320-3777 and 3320-3811

Serviços de Praticagem da Baía de Todos os Santos Sociedade Civil Ltda. (Pilotage)

(55 71) 3242-6058 and 3241-0778 – Fax: (55 71) 3241-5901

Comando do Segundo Distrito Naval (Navy Command)

(55 71) 3242-2242, 3243-0993, 3243-6817 e 3243-9102 – Fax: (55 71) 3241-6201

Federal Police – Maritime, Air and Frontier Police Division

(55 71) 3243-3952, 3319-6085 and 3319-6078

Port Healthcare Service – Sanitary Inspection

(55 71) 3320-1282 and 3241-0276

Delegacia da Receita Federal (Internal Revenue Service)

(55 71) 3320-2500

Salvamar Leste (Salvamar)

(55 71) 3320-3730, 3320-3772 and 3320-3726

Serviço de Sinalização Náutica do Leste (Base Naval de Aratu)

(55 71) 3320-3981

Aeroporto Internacional Dep. Luis Eduardo Magalhães (Airport)

(55 71) 3204-1010

CRA – Centro de Recursos Ambientais

(55 71) 3285-3879 and 3310-1400

Ibama – Instituto Brasileiro de Meio Ambiente e Recursos Naturais Renováveis (Brazilian Institute for the Environment and Renewable Natural Resources)

(55 71) 3345-7322

Military and Civil Police (Madre de Deus)

(55 71) 3604-1309

Hospital São Camilo (Candeias)

(55 71) 3601-1516

Hospital Geral do Estado (Salvador)

(55 71) 3276-8999

7.3 Berthing**7.3.1 Ship mooring**

The mooring lines must receive continuous attention so that the ship always remains berthed. All the lines must be kept under adequate tension during the operation, with the winch brakes on. The use of automatic tensioning winches is not permitted.

All the mooring lines must be of same type, gauge and material (fiber or wire); mixing mooring lines is not permitted.

Mixed mooring lines are those in which the lines executing the same function have different type, gauge and materials.

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

The breast lines must be lined up as perpendicularly as possible to the longitudinal axis of the ship, and passed as much as possible forward and aft.

Spring lines must be lined up as parallel as possible to the longitudinal axis of the ship.

When 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, and be of the same material and length.

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°.

Emergency towing ropes must be left hanging down to the waterline, over the bow and quarter on the side opposite to the berthing side, and must be fast to the onboard bollards, with the rope hands at the water line during the entire operation.

7.3.2 Ship/Terminal access

The Temadre piers do not have telescopic ladders for accessing the berthed ships. Aluminum wharf ladders with handrails are available, and these may be moved by the ship's loading gear.

All the ships must provide safe access for embarking and disembarking personnel, and the wharf ladders and ladders must always be ready for lowering. Where wharf ladders are used, there must be space for free strolling, and this wharf ladders must have a protective net. Life buoys with a guide rope must be available near the access means. The ship's gangway ladder or wharf ladder must be employed, when required.

When disembarking, the crew members using the Terminal facilities must wear closed leather shoes, long pants and shirts with sleeves, and may only circulate through the demarcated area as far as the expansion curve, where there will be a vehicle to take them to the exit gate.

It is forbidden for crew members to circulate within the Terminal facilities, except for the ship/access gate/ship strip. In these situations, it is mandatory for the crew to use the vehicle offered by the Terminal.

7.4 Before Cargo Transfer

- **Electrical grounding** – The loading arms are electrically grounded individually. The ship may also be electrically grounded via a grounding cable connected to the Terminal superstructure.
- **Connections and reductions** – The resources required for connection are established on the first contact between the ship and the Terminal. The ship must carry manifolds and install load reductions and connections so that the loading arms can be coupled. The personnel onshore connect and disconnect arms, hoses and grounding cables, assisted by the onboard personnel, who will handle cranes and derricks, when required. After connecting the loading arms, these are tested for tightness using the static pressure of the Terminal column for this purpose. An onboard representative must accompany the entire operation, and must be near the ship's load manifold. All the arms connected must be obligatorily supported, especially those connected to reductions.
- **Safety inspection** – The operation only begins after the on-shore and on-board representatives fill out the initial chart. The Ship/Shore Safety Checklist. (Appendix A of Isgott) is checked and filled out by the Safety Inspector (Giaont) during the initial ship release.
- **Means of Communication** – Communication with the ships is via VHF radios on the maritime frequency established and registered in advance. A secondary means, via terrestrial VHF radio, is established should the main system fail.
- **Operational control** – Temadre has two distinct control rooms. The main Control Room is located in the storage area at Parque do Mirim, immediately after the access track to the berthing piers, and is responsible for all the operations carried out on the pier, except for loading/discharging LPG ships. For operations with propane carriers, the operations are carried out by the Control Room at Parque Maria Quitéria (LPG park), at a distance of 1,500 meters from Parque do Mirim. In these control rooms there are the operators with responsibility controlling all the Terminal operations, using a supervision system.

- **Tank inspection** – Whenever possible, a ship must be inspected without entering the tanks. If the cargo requires the internal tank inspection, all safety precautions inherent to entering confined spaces must be taken. In this case, the ship must arrive with its tanks degassed and in a “free for man” condition. In case that Temadre or the inspectorship refuses the inspected tanks, the delay will be debited to the ship.
- **Inspecting the quantities** – 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 grounded, and the measurement instruments must be explosion-proof.
- **Ballast discharge** – The Terminal has two tanks for receiving discharge of ballast, dirty ballast and onboard effluents. Each tank has a capacity of 6,500 m³. The maximum flow rate to the receiving container is 500 m³/hr. The ship must schedule the discharges in advance, because to accept them the Terminal must arrange space in the tanks. The Terminal reserves itself the right to refuse any ballast and effluent discharge not scheduled in advance. It is mandatory to measure the quantity of dirty ballast to be discharged and its characteristics. Under no circumstances will the discharge of dirty ballast from petrochemical ships with tanks loaded with toxic products be permitted.
- **Cleaning** – Boiler tubes should not be cleaned while the ship berthed. Precautions must be taken so that sparks do not escape from the smokestack. The non-compliance with this regulation will lead to one or more of the sanctions below: immediate interruption of operations; a fine being applied by the relevant authorities; compulsory ship unberthing from the pier; notification of the infraction to the ship owners; the ship being held responsible for the fines, demurrage and all other related expenses resulting from this fact.
- **Access by small vessels** – The prohibition on non-authorized small vessels remaining in the vicinity of the hull near ships berthed must be strictly observed. Only the Terminal service vessels or the duly authorized vessels may remain the vicinity or alongside, provided that they meet all safety conditions. The violation of this rule shall be communicated to the competent authority.
- **Protection from product return and overflow** – The Terminal does not have retaining valves to prevent the product from exiting to the ship when the shore manifold is aligned. During discharges, it is up to the ship to monitor possible undesirable flows being received and the level in the tanks, in order to avoid overflows.

- **Propeller maintenance** – The ships berthed may not turn their propeller(s) while they are connected to the loading arms. 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

- **Pressure monitoring** – Cargo transfer is registered by the representatives onboard and onshore, in the ship's manifold, at hourly intervals. The Terminal controls the internal pressure variables, and the flow rates are checked in real time, via the supervision system available in the control rooms.
- **Operating flow rates** – The operating flow rates, measured on the ship and at the Terminal, and the total volume moved, are compared at hourly intervals and compared between the parties. Depending on the system used, there will be a threshold parameter for operational control. Any changes in the operating conditions must be communicated and documented between the parties.

During the operation, it is expressly prohibited to close any the valves that might cause counter pressure in the system.

- **Operations with LPG** – The ship must meet all conditions related to ships carrying by-products. In addition, it is necessary to give advance warning where a reduction in the flow or pressure is required, as well as to carefully monitor the cargo temperature. The Terminal has a particle filter and resources for effectively draining LPG-free water, thus minimizing the possibility of problems during operations. A vapor return line is also available which may be used in gassing the tanks onboard.
- **Ballast and slop discharge** – The slop, ballast and deballast piping and tanks must be designated for this purpose only, and remain isolated from other pipes aboard. The water ballast to be discharged into the sea shall be totally free of oil, any oily residues or other substances that might pollute the seawater. The Transpetro schedule, which interacts with the Petrobras logistics, provides tanks at the Terminal for receiving slop from the ships. Where the ship has to discharge slop at Madre de Deus, it shall inform, via its agent, the quantity to be discharged and origin thereof. The system used by the Terminal for discharging slop is the same employed for other products, by using lines set up for this purpose.
- **Tank cleaning** – COW operations are accepted, and depending on prior authorization from the schedule as regards ship laytime at the port, and from the Safety Inspector

(Giaont) as regards operational safety purposes. A standard form shall be filled out for this operation, as per NT-11-00005 of Baseline.

- **Repairs on-board and on the pier** – No repairs or maintenance works involving or that might involve risks of sparks or other forms of ignition may be carried while the ship is berthed on the Terminal piers. In extreme cases, all the safety rules must be complied with and fulfilled. Repairs involving pier facilities or implying any restrictions on the ship during the laytime must have prior authority from the Terminal, after being formally requested by the ship's representative.
- **Safety inspection** – Intermediate inspections, as per Isgott's Appendix A, must be carried out by the Safety Inspector (Giaont) at intervals of 6 hours, while the ship is operating.
- **Emergency stop** – A request to interrupt the loading and discharge operations of the ship must be made via radio or other means of communication whenever a situation arises that puts either the ship or the Terminal in danger. The operations must also be temporarily suspended during lightning storms, thunderstorms and/or squalls. 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 transportation of oil. The ship's captain is entitled to interrupt the operation when there are reasons to believe that the operations onshore are not safe, provided he notifies the pier operators in advance. In any emergency situation, The Marine Terminal of Madre de Deus interrupts the ongoing operations, so that all resources can be allocated to mitigating the accident. Actions and contacts for every v of emergency are described in the management's Emergency Plan , and the key telephone numbers are described in the item 9.

7.6 Cargo Measurement and Documentation

After finishing the operation, drainage of loading arms used must begin. The Terminal operators will arrange for drainage of the arms used to a closed system on the pier. The ship representative must arrange for drainage of the onboard section .

- **Final measurements onboard** – These will be carried out by the ship's personnel and inspected by the Terminal representatives or other inspectors. The material used must be duly grounded, and the measurement instruments must be explosion-proof.
- **Final ship release** – This will occur after comparing the quantities moved and after complementing laytime documentation.

7.7 Unberthing and Leaving Port

During the maneuver to unberth and leave port, the channel limits and hazards mentioned in the item 5.3 and its sub-items must be observed.

Usually, the pilot disembarks at the same point where he embarked when berthing. There will be a pilotage boat from the port waiting for him.

PORT AND ANCHORAGE AREA ORGANIZATION

8.1 Port Control (VTS)

No port control resources have been implemented at Temadre.

8.2 Maritime Authority

The maritime authority to which the Terminal is subordinated is the Harbor Master of Salvador. This is the maritime authority within the limits of the ports of Salvador, Aratu and Madre de Deus, and it is responsible for deciding which actions to take and the penalties to be applied to those responsible for any incident within the port limits

It stipulates that the visit by the tax enforcement and sanitary authorities happens before the ship berths at the Temadre pier. Occasionally, and with prior formalization, the inspection may be carried out with the ship berthed.

Ships heading to Temadre will be visited by Port Health, Customs and Federal Police representatives. The ship's agent must make the necessary arrangements.

All and any documents concerning the dispatch of the ship at the last port of call must be presented to the port authorities.

8.3 Pilotage

Pilotage is mandatory for all ship maneuvers beginning at the point where the pilot embarks (item 5.3.5).

In all situations, the pilotage service is actioned by the ship's agent. In case of emergency, and depending on availability, the pilot will board the ship at the earliest opportunity.

The pilotage services must be obtained from Serviços de Praticagem da Baía de Todos os Santos, and the request must be issued at least 3 hours in advance of the ship leaving the anchorage area, and 4 hours before unberthing at the Terminal begins.

Contact may also be made via VHF, channel 16, prefix PVG 26.

→ **Empresa de Praticagem Salvador Pilots** – Serviços de Praticagem da Baía de Todos os Santos Sociedade Civil Ltda. Phone: (55 71) 3242-6058 and 3241-0778 – fax: (55 71) 3241-5901.

→ **Empresa de Praticagem Bahia Pilots** – Serviços de Praticagem with Salvador Pilots, at Todos os Santos Bay, as stipulated in Administrative Rule/CPBA No. 55. Office phones: (55 71) 3322-9002 – fax: (55 71) 3322-9966. Station phones: (55 71) 3321-0305 and 3321-2724 – fax: (55 71) 3322-0460.

There is a rota sheet that provides advance knowledge of the days when the Estação de Praticagem da Bahia Pilots and Estação de Praticagem da Salvador Pilots work. The station rotas will always occur on Mondays, Wednesdays and Fridays, at noon.

8.4 Tugs and other Maritime Services

8.4.1 List of the tugs available in the anchorage area and/or Terminal

Temadre will assume responsibility only for the operation of its own tugs (Júpiter and Netuno), but it carries out periodic inspections on its own tugs and those of third parties. Those tugs not compliant with the safety specifications are immediately disqualified from operating at our facilities.

Name	Azimuthal	Shafts	Total HP	Static Traction* (Bollard pull)	Operator	Telephone/ Fax (55 71)
Júpiter	No	2	835	15.9	Transpetro	Rua Milton Bahia Ribeiro, s/nº – Madre de Deus Phone: 3604-1303
Netuno	No	2	835	16.4		
Paraguaçu	No	2	960	23.61	Navemar Transportes & Comércio Marítimo Ltda.	Av. da França, 164/910-911, Ed. Futurus – Comércio Phone: 3241-4727
Belo Horizonte	No	1	1,235	21.22		
Ômega	Yes	2	2,654	35.08	Saveiros Camuyrano	Av. da França, 164/801 e 8112, Ed. Futurus – Comércio Phone: 3254-9766
Ursa	No	2	1,830	28.68		
Arcturus	No	1	2,170	31.34		
Lagoa Carioca	No	1	2,100	29.43	CNL – Companhia Navegação das Lagoas	Tv. Francisco Gonçalves, 1/ 1205-1207, Ed. Miguel Calmon – Comércio Phone: 3242-2219
Estrela Pasuello	No	1	1,240	15.15		
Brigantia	Yes	2	4,200	50.01	Metalnave Comércio e Indústria S.A.	Av. da França, 164/1010-1011, Ed. Futurus – Comércio Tel.: 3242-6683
Corumbá	No	1	840	20.17	Sulnorte Serviços Marítimos Ltda.	Rua da Grécia, 165/807-811 – Ed. Serra da Raiz – Comércio Phone: 3241-8133
Guaraparí	Yes	2	4,000	51.34		
Navemar I	Yes	2	1,395	40.38	Navemar Transportes & Comércio Marítimo Ltda.	Av. da França, 164, salas 910/911, Edf. Futurus, Comércio. Phone: 3241-4727
Lugos	Yes	2	4,200	40.42	Metalnave Comércio e Indústria S.A.	Av. da França, 164/ 1010-1011, Ed. Futurus –Comércio Phone: 242-6683

* Static traction tests updated to Oct/2004.

8.4.2 Other relevant maritime services

The list of companies below is a courtesy from Temadre, and it will not assume any responsibility for the quality of the services provided, fulfillment of deadlines or qualification of the personnel .

The release for service providers to access the vessel will be conditional on the service being approved by the Property Surveillance service at Temadre.

Without a written permission from the Terminal representative, no repair or maintenance work of any nature that may involve risk of sparks or other forms of ignition may be carried out while the ship is berthed.

8.4.2.1 Maritime agencies

- Bahiaship – Agência Marítima Ltda. Av. Estados Unidos, 18b, 8º andar. Phone: (55 71) 3243-8825.
- Brandão Filhos – Agência Marítima Praça da Inglaterra, 6, 6º andar, Comércio. Phone: (55 71) 3243-1211.
- Caboto Comércio e Marítima Ltda. Rua da Grécia, 165, Ed. Serra da Raiz, Comércio. Phone: (55 71) 3241-8133.
- Williams Serviços Marítimos Ltda. Rua Miguel Calmon, 19/1001, Comércio. Phone: (55 71) 3367-3840.
- Granel Agência Marítima Ltda. Av. da França, 164/510, Ed. Futurus. Phone: (55 71) 3237-5185.
- Transchem Agência Marítima Rua da Grécia, 8, 4º andar, Comércio. Phone: (55 71) 3358-6153.
- Brisamar Agenciamentos Marítimos Ltda. Av. Estados Unidos, 397/601, Comércio. Phone: (55 71) 3242-7011.

8.4.2.2 Ship repairs and divers

Company	Telephone / Fax (55 71)	Specialty
Corema	3312-2034 / 3312-6655	dockage and machining
Leomar Naval Ltda.	3521-2817 / 3242-6427	dockage and machining
Aratu Serviços Marítimos e Terrestres Ltda.	3243-0224 / 3242-2639	dockage and machining
Bahia Rio Reparos Navais e Diesel Ltda.	3327-2541 / 3243-5043	dockage and machining
Copman	3396-0373 / 3496-2132	
Megatron	3234-3437 / 3381-1414	Electronic equip. and radar
Flavio Cantalogo	3245-5693 / 3326-5871	Electronic equip. and radar
Base Naval de Aratu	3307-3400 / 3307-3571	Dock repairs and services

8.4.2.3 Support boats

The Terminal provides three diesel motorboats, steel-hulled for assisting with berthing, unberthing and emergency works. It is mandatory to summon the Terminal for the maneuvers. The call is made directly by the pilot.

8.5 Other Maritime Terminals

PORT OF SALVADOR

Modus operandi of the organized port – Loading operations within the organized port are governed by the Port Exploration Regulations, and executed by private companies, pre-qualified and authorized by Codeba as Port Operators. The number of companies in this situation is 13 (December 2002). They meet the needs of the State of Bahia, and south-eastern and southern regions of the States of Pernambuco and Sergipe, respectively.

- **Products handled** – Exports: petrochemical, iron/steel, granite, cellulose, fruits, sisal, vehicles and copper (coils or cathodes), etc. Imports:, etc.
- **Geographical location and characteristics** – In the Todos os Santos Bay, between Ponta do Monte Serrat, at north, and Ponta de Santo Antônio, at south.
- **Geographical coordinates**: Latitude: 13° 00" 37 S, Longitude: 38° 35'00 W.
- **Unctad Locode**: BR SSS Time Zone: GMT – 3 hours.
- **Pilotage** – Regulated by the Harbor Master, Administrative Rule No. 14. Mandatory for foreign ships, tankers and propane carriers. Optional for Brazilian ships, commanded by a Brazilian maritime officer of the “cabotage master” category.
- **Access channels** – Two. The first (internal), on the city side, with a minimum depth of 8 meters; the second (external), on the Itaparica Island side, with a depth ranging from 13 to 55 meters.
- **Address**: Av. da França, 155 I, Comércio. CEP: 40010-000. Salvador – Bahia. Phone: (55 71) 3320-1299 – fax: (55 71) 3320-1268. E-mail: portosalvador@codeba.com.br.

PORT OF ARATU

The Port of Aratu is specialized in handling bulk solids and liquids, gas products and vegetal oils. It is owned and managed by Codeba.

- **Geographical location and characteristics** – It is located between Ponta do Marinho and Ponta João Pessoa, in the city of Simões Filho, and its accesses are included in the charts 1103, 1104, 1110 and 1101. Located in the Enseada do Caboto, within the Todos os Santos Bay, city of Candeias, 50 km from downtown Salvador .

→ **Geographical coordinates:** Latitude: 12° 47'00 S, Longitude: 13° 30'00 W.

→ **Unctad Locode:** BR ARB Time Zone: GMT – 3 h.

→ **Address:** Via Matoim, s/no – Baía de Aratu. CEP: 43800-000. Candeias – Bahia.
Phone: [55 71] 3602-5711 – fax: [55 71] 3602-5705. E-mail:
portoaratu@codeba.com.br.

Dow Química Terminal

The Dow Química Terminal is used for handling chemical products, such as ethene cryogen, liquid propene oxide, and liquid propene. It belongs to and is managed by Companhia Dow Química. It is located at Ponta da Mangueira, on the northern bank of Cotegipe channel, and its accesses are included in the charts 1103, 1104, 1110 and 1101.

Gerdau/Usiba Terminal

The Gerdau/Usiba Terminal is designated to receive raw or pelletized iron ore and pressed iron scrap. It is located at Ponta da Sapoca, in the district of São Tomé de Paripe, and belongs to and is managed by the Gerdau/Usiba Group. The Terminal and its accesses are included in the charts 1103, 1104, 1110 and 1101.

8.6 Other Key Users

Not applicable to Temadre.

EMERGENCY PLAN

9.1 Emergency Contacts

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

Organization	Operating Times	Identification Acronym	Telephone (55 71)	Fax (55 71)	Cell phone (55 71)	VHF/UHF Call
Harbor Master	24 hours	CPBA	3320-3777	3320-3811	–	16
Tugs	24 hours	–	3642-3429	3642-3338	–	16
Pilot Association	6:00 am to 6:00 pm	–	3241-0778	3246-6058	9982-7336	16
Pier operator's cabin	24 hours	PP-2	3642-3228	3642-3483	–	16
Control room at Mirim	24 hours	–	3642-3213	3642-3414	–	03
Control room the LPG park	24 hours	–	3642-3214	3642-3243	–	04
Technical support Temadre	7:00 am to 4:00 pm	–	3642-3727	3642-3220	–	06

continue

Organization	Operating Times	Identification Acronym	Telephone	Fax (55 71)	Cell phone (55 71)	VHF/UHF Call
Temadre Management	7:00 am to 4:00 pm	TA MDeus	3642-3717	3642-3206	9974-4260	-
Fire Department Madre de Deus	24 hours	GBM	3604-1686 3604-1605	3604-1686	-	-
Civil Defense Madre de Deus	24 hours	-	3604-5655	-	-	-
Madre de Deus City Administration (Environmental Coordination)	8:00 am to 5:00 pm	-	3604-1386	3604-3100	9131-8663	-
CRA (local environment agency)	24 hours	CRA	0800-711400	3310-1425	9972-8145	-
Ibama	24 hours	Ibama	0800-618080	3345-0952	-	-

9.2 Environmentally Sensitive Areas

The Emergency Plan at Temadre describes the areas most sensitive to environmental impacts, listed on sensitivity maps. Depending on the area selected, the maps highlight those points subject to the greatest impact, should an event like this happen in the Todos os Santos Bay .

9.3 General Description of the Organization for Combating Emergencies

The table below indicates the organizations responsible for handling any emergencies that involve vessels approaching the Terminal.

Incidents within the Port/Terminal Area

Incident Type	Organization Responsible	Other Organizations Involved			
Collision in the channel	Harbor Master	Civil Defense	Transpetro	-	-
Ship running aground	Harbor Master	Civil Defense	Transpetro	-	-
Collision at the berth	Harbor Master	Transpetro	Civil Defense	-	-
Ship sinking	Harbor Master	Civil Defense	Fire Department	Transpetro	-

continue

Incident Type	Organization Responsible	Other Organizations Involved			
		Transpetro	Fire Department	Civil Defense	Harbor Master
Fire onboard	Ship	Transpetro	Fire Department	Civil Defense	Harbor Master
Fire at the berth	Transpetro	Fire Department	Defesa Civil	Harbor Master	–
Pollution	Transpetro or Ship	Capitania dos Portos	CRA	Ibama	–

9.4 Emergency Plans

PEL (Local Emergency Plan) is the Temadre's plan for combating emergencies at all its facilities. It is available in all operational areas, on notice boards located in the operating maintenance rooms and administrative building entrances. The local SMS (health, environmental and safety activity) is responsible for keeping it updated.

The Temadre has an Emergency Response Center (CRE), equipped with modern gear and facilities to be used where accidental pollution occurs. Periodically, intensive training is given so that the Terminal personnel are qualified to act according to the Local Emergency Plan (PEL). Strategically located, the CRE can act quickly to combat emergencies. Its shed stores floating booms, oil collectors and other equipment and materials required for doing the job. The service and support boats, tankers and oil collection vessels remain berthed at the pier, in permanent state of readiness.

The Terminal has an ambulance equipped for providing first aid in the Auxiliary Area (area located near the pier). A nurse works to an administrative regime, during the period when there is the greatest concentration of personnel due to maintenance and building works. Serious cases, or cases arising outside the administrative hours, are forwarded to Hospital São Camilo, located in the city of Candeias (at approximately 15 km from the Terminal).

9.4.1 Preventive measures on board

Berthed ships must maintain their emergency tow ropes fast to the onboard bollards and hanging down to the waterline during the entire operation, by the bow and quarter on the side opposite to the mooring side.

The emergency and fire fighting equipment shall be kept ready for use while the ship is berthed. The operational fire hoses must be extended, one forward and one aft of the loading manifolds.

A pollution fighting kit (sawdust, rags, shovels, buckets, squeegees, transfer pumps, etc.) must be kept for use in case of oil spillages. Supplementary precautions must be taken to avoid polluting the seawater with oil.

9.5 Public Resources for Combating Emergencies

At the Port of Madre de Deus, only Transpetro, via Temadre and other operational units, summoned under the Local Emergency Plan, have resources that may be used for mitigating sea pollution events. For other emergencies, the public organizations offer resources according to the purposes for which they are designated.

9.5.1 Local emergency services

The Fire Department, Civil Defense, Military Police and hospitals at Madre de Deus are alerted according to the table in the item 9.1.

9.5.2 Mutual support plans

The institutions below participate in the Mutual Assistance Plan (PAM), and their resources are available as previously agreed to in this plan: Fire Department; Transpetro/Temadre; Petrobras/Refinaria Landulpho Alves (Mataripe).

The following plans are available:

- **PAM** –
- **PCD** – includes the companies in the pipeline highway consortium (Contingency Plan for the pipeline highway Camaçari Nucleus-RLAM-Port of Aratu);
- **PCRIII** – includes all the Petrobras and Transpetro companies in region 3, (Bahia, Sergipe and Alagoas).

The institutions listed below participate in the Mutual Assistance Plan (PAM), and their resources are readily available as agreed to in advance in this plan:

- Corpo de Bombeiros Militar (Fire Department);
- Transpetro/Temadre;
- Madre de Deus City Administration (Civil Defense);
- Centro de Recursos Ambientais (CRA);
- Petrobras/Refinaria Landulpho Alves (Mataripe);
- Petrobras/UN Bahia;
- Other companies that have signed the Camaçari Pipeline Highway Contingency Plan.

9.6 Combating Oil Spills

The sub-items below describe the resources available for combating pollution in the areas near the Terminal.

9.6.1 Pollution-combat capacity of the Terminal

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

9.6.2 Combat Capacity of the environmental agency

The Environmental Resources Center (CRA) does not have the resources for combating oil spillage into the sea.

9.6.3 Resources available from the mutual support plans from other Terminals

The resources available at other Transpetro Terminals for combating pollution emergencies at the Terminal surroundings are listed in the LEP.

9.6.4 Tier-2 combat

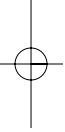
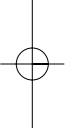
Deals with combating a significant pollution situation. In these events, the regional resources from Transpetro and Petrobras are requested. These resources, their readiness and how they are called into action are described in the LEP.

9.6.5 Tier-3 combat

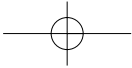
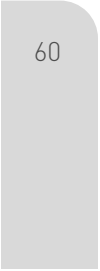
Deals with combating an extensive pollution event. In these events, the national resources from Transpetro and Petrobras are requested. These resources, their readiness and how they are called into action are described in the LEP.

9.7 Combating Large-Scale Incidents

Temadre's LEP lists the actions and those responsible for every possible type of event that may occur within its unit, pipelines or vessels, and involving third parties. For events not included in this document, Transpetro and Petrobras will provide all the national or international resources within their reach.



PORT INFORMATION



CONTACTS

10.1 Terminal

Location	Contact	Telephone (55 71)	Fax (55 71)	VHF/UHF Channels	
				Call	Conversation
Berth PP-1	Operator	3642-3227	–	16	06 or 09
Berth PP-2/PP-3	Operator	3642-3228	3642-3483	16	06 or 09
Berth PP-4	Operator	3642-3291	–	16	06 or 09
Berth PS-1	Operator	3642-3229	–	16	06 or 09
Control room for LPG	Operator	3642-3214	3642-3243	04	04
Shift supervisor	Supervisor	3642-3256	3642-3339	03	03
Security (SMS)	Supervisor	3642-3726	3642-3452	05	05
Surveillance	Inspector	3642-3738	3642-3346	08	08

10.2 Port Services

Organization	Contact	Telephone (55 71)	Fax (55 71)	E-mail	VHF/UHF Channels	
					Call	Conversation
Harbor Master	Official on duty	3320 -777	3320-3811	20@cpba.mar.mil.br	16	Free choice
Salvador Pilots	Agency	3241-0778	3246-6058	adm1@salvadorpilots.com.br	16	11
Bahia Pilots	Agency	3321-0305 3321-2724	3322-0460	diretoria@bahiapilots.com.br	16	Free choice
Tugs	Agency	3350-4552	3350-4558	agenciasalvador@petrobras.com.br	16	11

10.3 Local Authorities, State and National Agencies

Item 9.1 shows a list containing these authorities and their respective contacts.

10.4 Emergency Combat Organizations

The emergency combat organizations available at the port are listed in the item 9.1.

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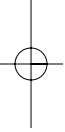
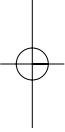
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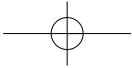
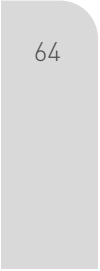
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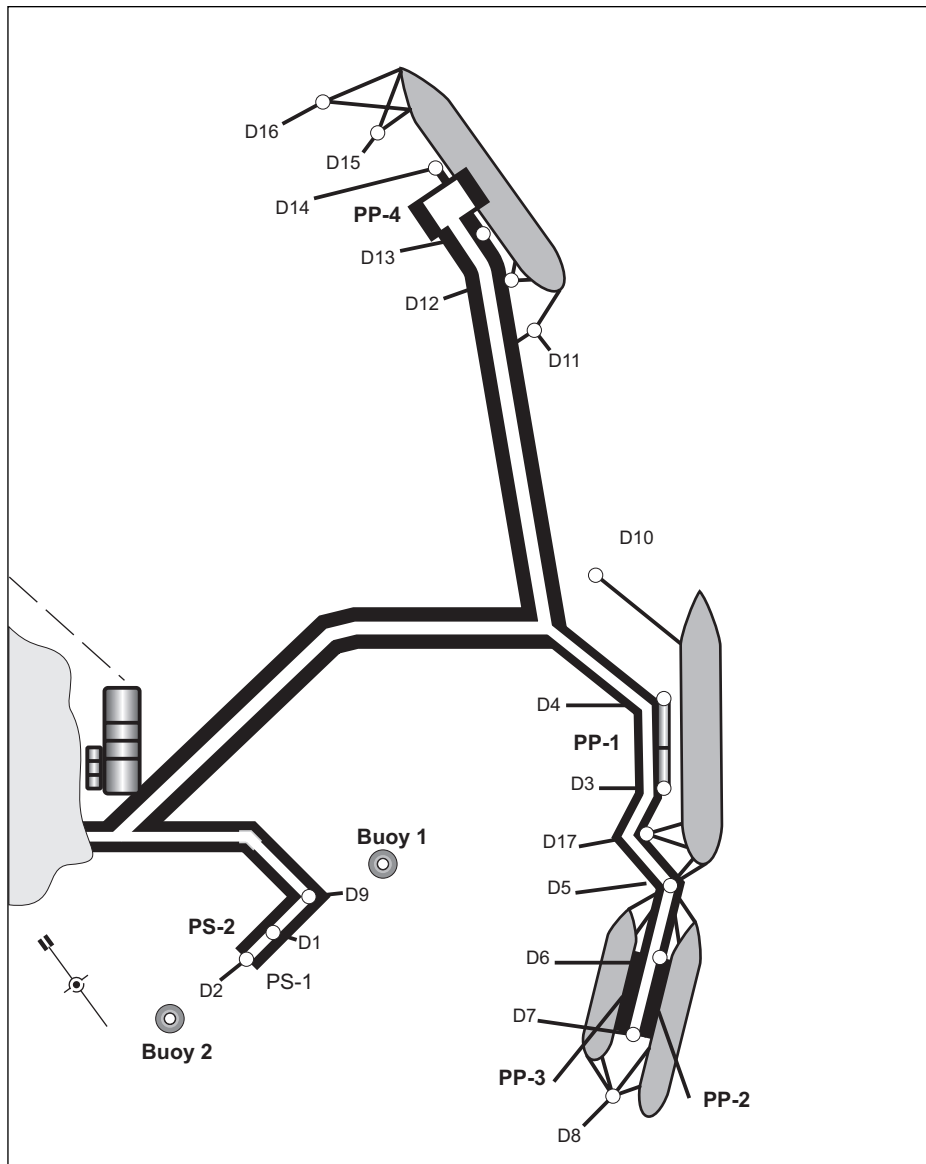


PORT INFORMATION

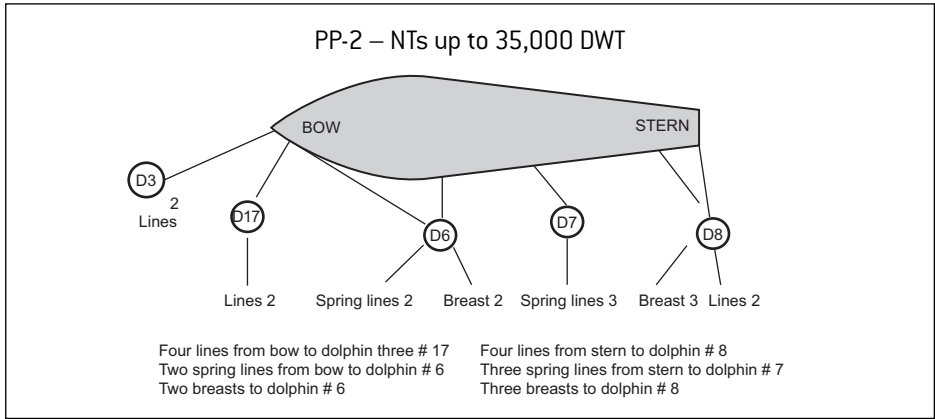
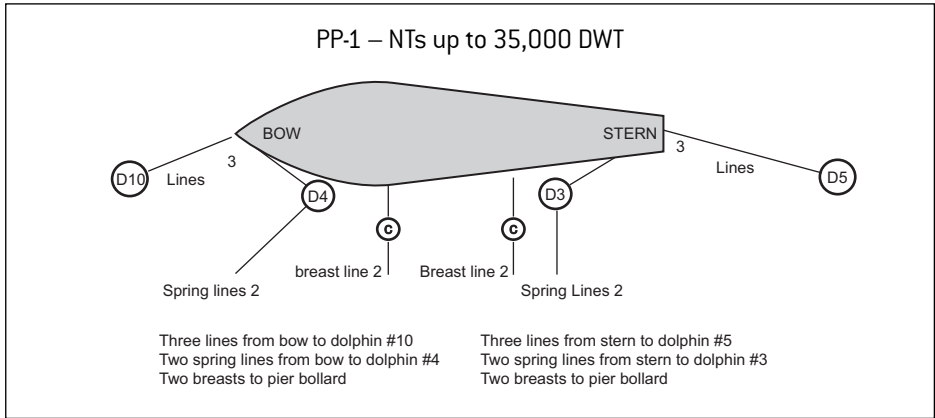
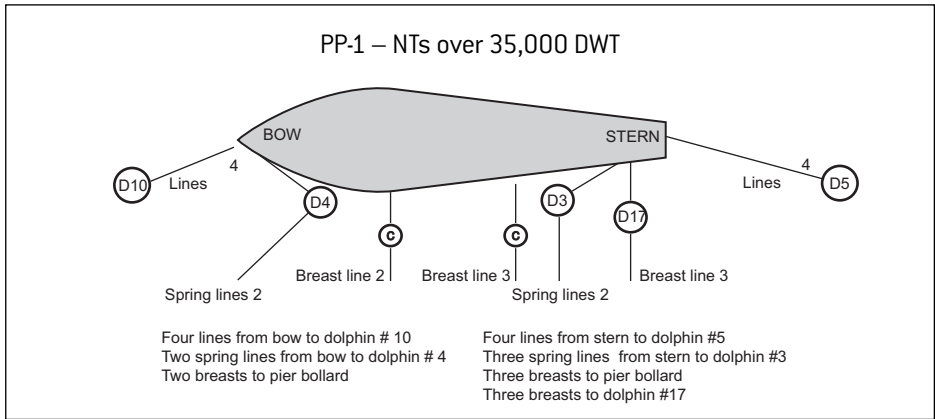


APPENDICES

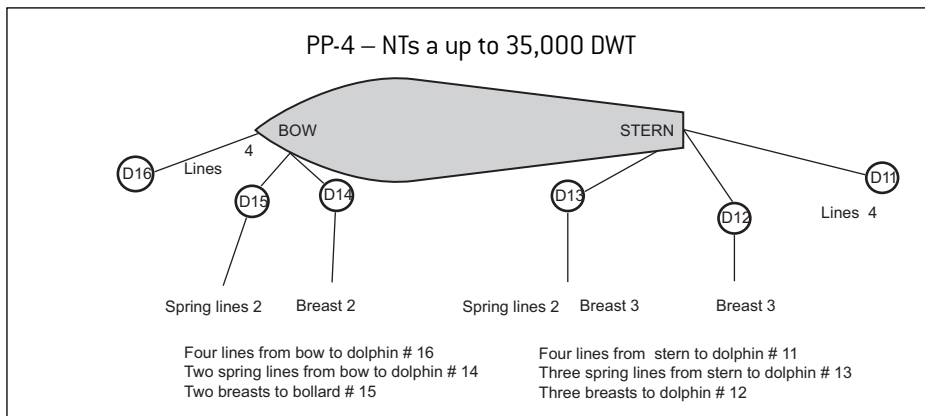
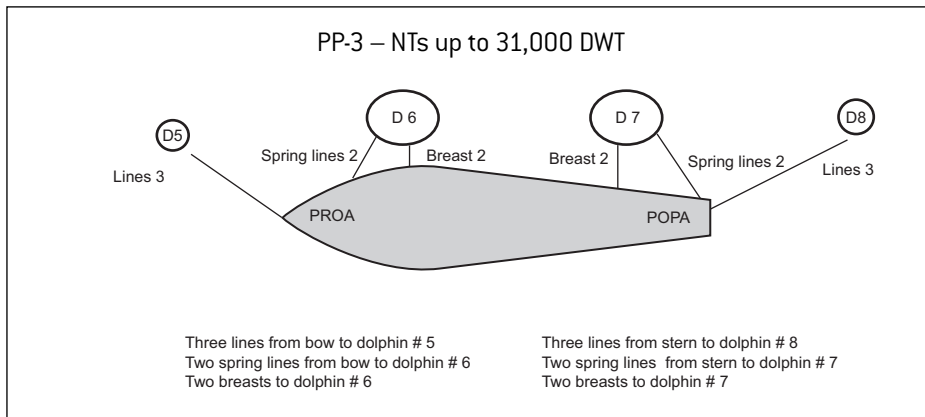
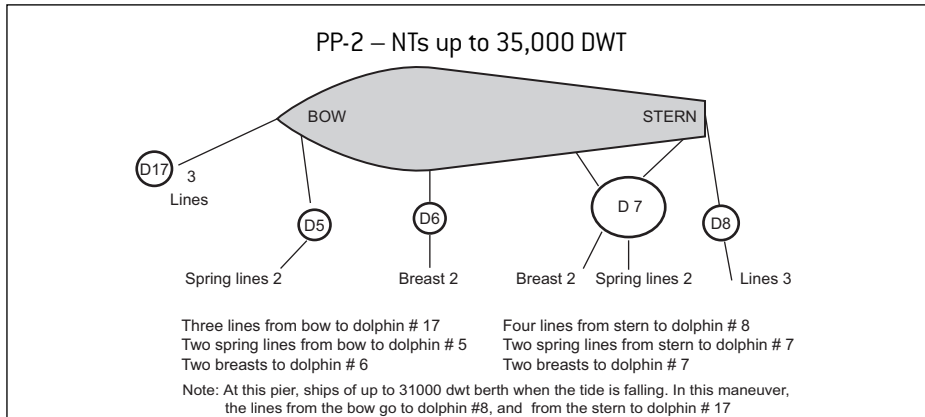
A – Location of the mooring dolphins



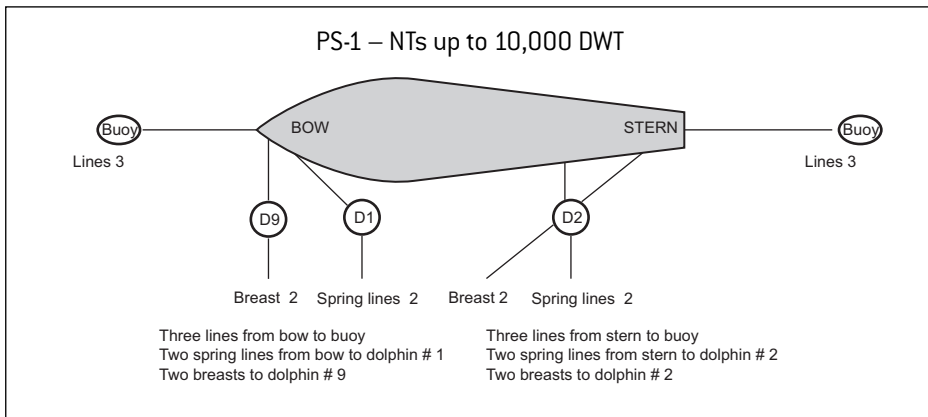
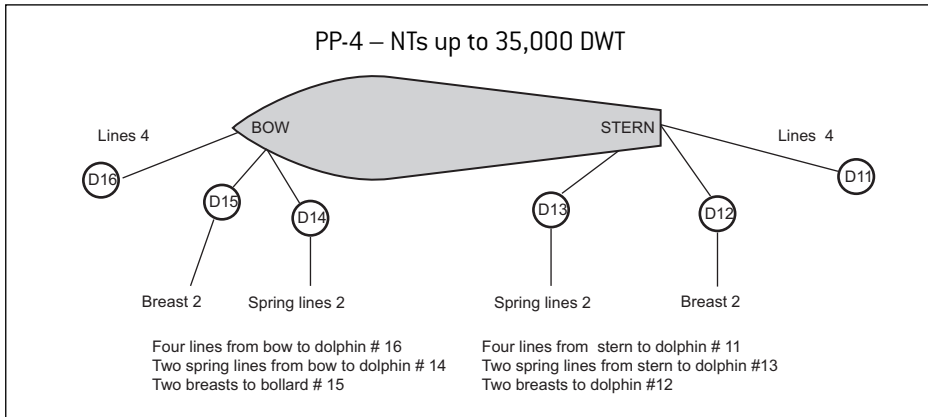
B – Mooring point diagram



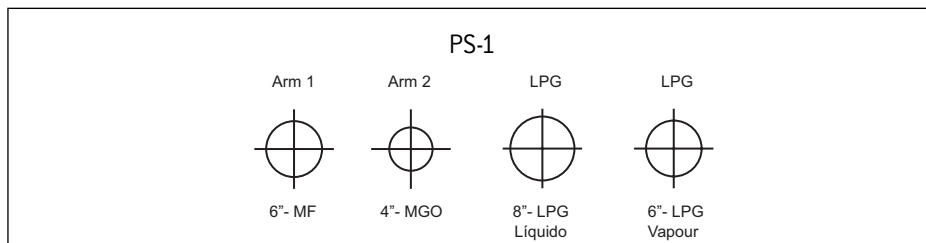
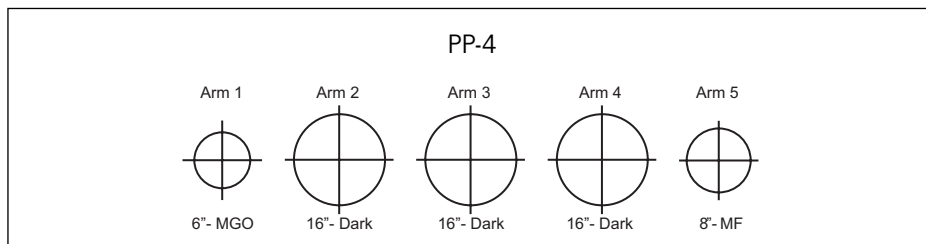
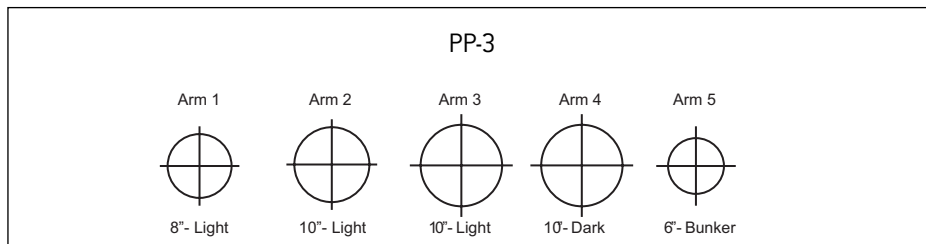
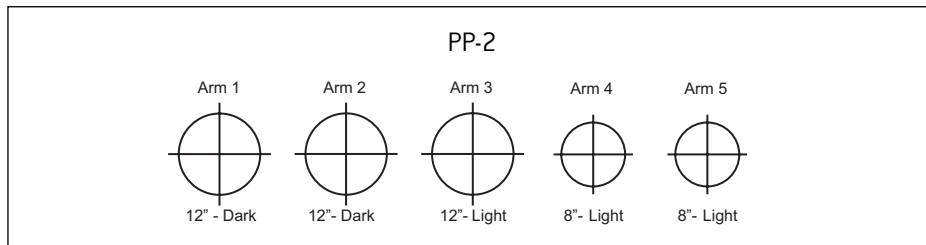
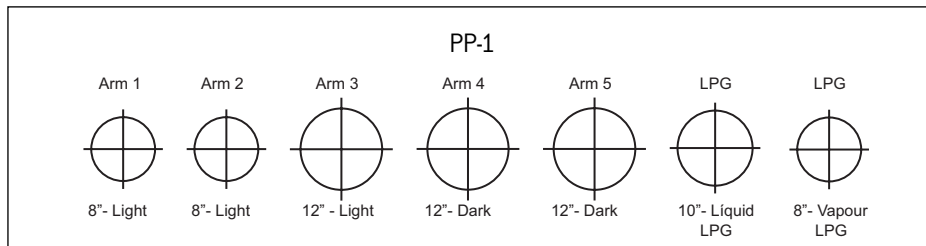
Note: Depending on the ship's size, springs may be placed as breasts.



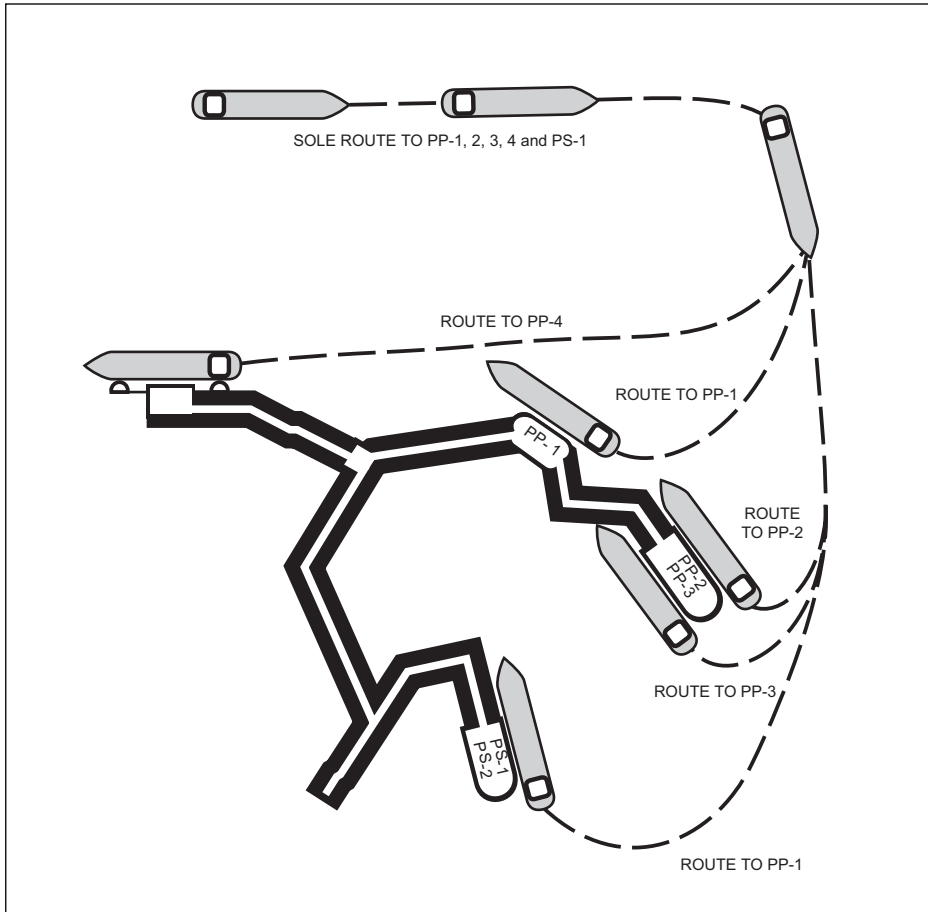
Note: Depending on the ship's size, springs may be placed as breasts.



**C – Distribution of the loading arms in each berth
(onboard view)**



D –Basic instructions for berthing maneuvers at Temadre



E – Essential vessel information for the Terminal

Port and Terminal:		
Vessel Information Request:		
Ship name:	Estimated Time of Arrival (ETA):	
Flag:	Last port:	
Captain's name:	Next port:	
Ship owners:	Agents:	
Does the ship have an inert gas system?		
Oxygen content:		
Length overall (LOA):	Draft at arrival:	
Length between perpendiculars:	Maximum draft during transfer:	
Beam:	Draft when leaving:	
Number of engines:	Transversal propulsion:	
Number of propellers:	Bow (number and power):	
	Stern (number and power):	
Tugs, minimum required:		
No. and static traction (bollard-pull):		
Number and size of manifold flanges:	Distances:	
Cargo:	Bow to manifold:	
Ballast:	Hull to manifold:	
Bunkers:	Manifold height to main deck:	
Loading schedule (fill when applicable):		
Naming:		
Type and quantity: m ³	Type and quantity: m ³	Type and quantity: m ³
Ballast discharge at sea:		
Quantity: m ³	Estimated time:	
Slop/ballast discharge ashore:		
Quantity: m ³	Estimated time:	
Discharging schedule (fill when applicable):		
Type and quantity: m ³	Type and quantity: m ³	Type and quantity: m ³
Ballast:	Volume: m ³	Time:
Bunkers requested:		
Type and quantity:	Type and quantity:	
Additional information (if any):		

F – Information to be exchanged before cargo transfer

Information between ship and terminal			
Ship name:		Mooring berth:	
Voyage number:		Berthing date:	
Contractual data			
Number of on-board pumps:			
Volumetric capacity 98%:		m ³	
Guaranteed discharge pressure (for discharge operation):		kgf/cm ²	
Simultaneous ballast/deballast capacity with loading/discharging:			
Voyage information			
Freighting type (VCP,TCP,COA, etc.):			
Voyage type (cabotage/long run):			
Origin and destination ports or locations:			
Did the ship request bunker?			
Communication mean between ship and Terminal:			
Cargo information			
Product:	Quantity:	Temperature:	API:
SLOP			
Quantity:	Temperature:	API:	
Fluidity:	Origin:		
	Contaminants:		
Ballast			
Dirty Ballast:			Segregated Ballast:
Quantity:	Temperature:	Quantity:	
Operation information			
For discharging:	Will the ship perform special operation (COW, Inertization, etc.)?		
	Estimated time for the special operation:		
	Required pump downtime:		
For loading:	Advance notice time for TOP :		
	Flow during TOP period:		
	Quantity of ballast to be discharged:		
	Maximum flow allowed for deballast:		
Are there restrictions concerning electrostatic properties?			
Are there restrictions on using valves with automatic closure?			
Ship/Terminal conditions for the operation loading/discharging per product			
Ship	Pressure:	Terminal	Pressure:
	Flow:		Flow:
	Temperature: Max.:		Temperature: Max.:
	Min.:		Min.:

continue

Operation sequece per product
Quantity to be loaded/discharged:
Origin/destination tanks:
Onboard/onshore lines:
Loading arms/hoses used:
Operation forecasted to start/end:
Complementary operating and safety information