TRANSPETRO

# PORT INFORMATION

*Terminal*
## NORTE CAPIXABA

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# SUMMARY

# Introduction

This publication was prepared by Petrobras Transportes S.A. (TRANSPETRO), which operates the Ocean Terminal – Norte Capixaba Terminal (TNC).

It provides essential information for the ships which operate in the Terminal, having versions in Portuguese and English.

This document is also distributed internally in the organization, and to the interested port parties, local and national authorities.

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

Therefore, anything which is contrary to the aforementioned documents, or jeopardizes, replaces or alters any prescriptions defined by the Maritime Authority or its representative must not be taken into consideration. Nor is any ship, its captain or crew exempt of the consequences arising from negligence in fulfilling any precaution required by maritime practices or by special circumstances present at the moment of the maneuvers or operations in this Terminal.

When using the information contained in this document, the dangers to navigation and of colliding with the Single Point Mooring (SPM) or other ships operating nearby, should be taken into account, as should the limitations of the ships involved and the restrictions related to the SPM system.

It may be necessary to completely ignore the information contained in this document, when this procedure is indispensable to avoiding immediate operating risk or danger, the commanded not being able to exempt himself of his full responsibility for the maneuver executed, by alleging unrestricted fulfillment of the information contained in this document.

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

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

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The most recent version of this Port Information can be obtained at the following address: **www.transpetro.com.br**.

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# Definitions

**BEAUFORT Scale** – Scale which classifies the intensity of the winds and the state of the sea, taking into account its speed and the effects resulting from gales at sea and on land. It varies from 0 (calm – aspect of the mirrored sea and smoke rising vertically) to 12 (hurricane – windows of more than 64 knots and waves of more than 14 meters).

**BP (Bollard Pull)** – Ship's longitudinal Static Traction.

**Bunker** – Maritime fuel for ships.

**COW** – Crude Oil Washing (cargo tank cleaning with crude oil).

**Dry tide** – A condition in which the tide reaches the minimum level at a given time of the year.

**ETA** – Estimated Time of Arrival.

**Giaont** – Safety Surveyor Staff.

**Hawser** – Nautical term used to designate a thick cable used in mooring or towing ships.

**IMO** – International Marine Organization

**Isgott** – International Safety Guide for Oil Tankers and Terminals.

**ISPS Code** – International Ship and Port Facility Security – Parts A & B

**Manifold** – Set of load sockets and valves located at mid-vessel, where the short hoses are connected for the operation of loading or unloading.

**Push-pull** – Method of assistance of tugs with a cable going in the well of forepeak and aft, when the action can be changed from "pulling" to "pushing" in a short space of time.

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

**SLOP** – Mixture of oil and water resulting from washing tanks or other internal operations such as transferring oil from the engine room or draining trays of the manifold.

**Syzigy tide –** A condition in which the tide reaches the maximum level at a given time of the year.

**VTS** – Vessel Traffic Service.

**Well** – Space between the castle, or the quarterdeck, and the superstructure of the ship. When the ship has a superstructure aft, in practical terms it can be considered to be the position immediately at the forepeak of the superstructure.

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# CHARTS AND REFERENCE DOCUMENTS

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

## 3.1 Charts

| Area | Chart Number<br>Brazil (DHN) |
|---|---|
| Anchorage & Port Approach | 1,300 |
| Mouth of the Port and Channels | 1,300 |
| Terminal and Approach Area | 1,300 |
| Other significant areas | 1,300 |

## 3.2 Other Publications

| Type/Subject | Editor or Source | |
|---|---|---|
| | Brazil (DHN) | British Admiralty |
| Books of Pilotage or<br>Instructions of Navigation | | Pilot Chart |
| State or National Port Information<br>Regulations | Roteiro Costa Leste<br>(East Coast Routing) | |
| Other relevant documents | Maritime Authority Standards | |


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# Documents and Information Exchange

The items listed below must be provided by the Terminal or the 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 information on the Terminal | X | | | | X | | As per Appendix D |
| **Before cargo or bunker transfer** | | | | | | | |
| Details about onboard cargo/slop/ballast | | X | | X | | | As per Appendix F |
| Essential operating information (fill in locally) | X | | | | X | | As per Appendix F |
| Ship/Shore Safety Ship/Land Checklist | | | X | | | X | As per Isgott Appendix G |

*continue*

| Information | Prepared by: | | | Delivered to: | | | Comments |
|---|---|---|---|---|---|---|---|
| | Terminal | Ship | Both | Terminal | Ship | Both | |
| **During cargo or bunker transfer** | | | | | | | |
| Repeat Ship/Shore Safety Checklist | | | X | | | X | As per Isgott Appendix G |
| **After cargo or bunker transfer, before departure** | | | | | | | |
| Information required for unberthing the ship | | | X | | | X | Quantities of load and consumables (fuels and drinking water) aboard |
| **After unberthing, when leaving the port** | | | | | | | |
| Information concerning port departure data | | X | | X | | | Hours of disembarking the Mooring Master Manobras, HOS and ETA at destination |

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# Description of the Port or Anchorage Area

## 5.1 General Description

The ocean Terminal, named Norte Capixaba Terminal, comprised by a monobuoy for mooring tankers up to 80,000 DWT and maximum draft of 12 meters.

Managed by Transpetro, this Terminal operates with monobuoy, which serves as an oceanic terminal for mooring tankers (NT) aimed at carrying the oil proceeding from the onshore tanks.

The product storage is made into five tanks (5), four (4) of them with 16,160 $m^3$ of capacity each, storing heavy oils, and another one (1) tank providing 15,600 $m^3$ of capacity for light oils, which are used for storing the onshore production.

There are no restrictions about the maximum dimensions related to the ship's total length and beam.

TNC has implemented corporate safety protection measures applicable to ships and port facilities, in compliance with the requirements of the International Maritime Organization – IMO, by adopting the ISPS – International Ship and Port Facility Security Code.

When required, these protection measures may be activated from the ship via VHF radio, channel 16.

Usually, the Terminal operates at safety level 01.

## 5.2 Location

### 5.2.1 Coordinates

The TNC's "SBM-2" monobuoy is centered in the following coordinates:

→ Latitude: 18º 58.67' S

→ Longitude: 039º 42.37' W

### 5.2.2 General geographic location

It is located 77 km to the North of the source of the Rio Doce and 2.7 km to the South of the town of Barra Nova, at the following coordinates: latitude 18º 55' 30" S and longitude 39º 44' 30" W. The Terminal was built at the place called Campo Grande de Barra Nova, on the isle of Campo Grande, in the municipality of São Mateus, 246 km from the city of Vitória. The TNC is situated approximately 2 miles to the South of the source of the Rio Mariricu and at 60 miles from the Terminal Barra do Riacho, the nearest operating support base of Transpetro.

## 5.3 Approaching the Terminal

### 5.3.1 General description

Since it is an open-sea monobuoy, the Terminal can be reached both from North and South. The choice of the direction of approach depends upon the resulting from the sea and wind forces interacting with the ship.

For the initial approach, in order to embark the Mooring Master and his team, the ship will use the Suçuruaca lighthouse as a reference. The position of the Suçuruaca lighthouse is: 19º 06.0' S and 039º 43.2' W, and it is characterized by 2 flashes of light with an eclipse of 9 seconds and a period of 30 seconds (interval between flashes of light of 19 seconds). The flash of light can be seen 24 miles away.

### 5.3.2 Anchorage area

The anchorage area recommended for awaiting sunup or orders is located at the following geographical coordinates:

→ 01 – Latitude 18º 59.22' S and longitude 039º 42.37' W

→ 02 – Latitude 18º 59.22' S and longitude 039º 41.80' W

→ 03 – Latitude 18º 59.76' S and longitude 039º 42.37' W

→ 04 – Latitude 18º 59.77' S and longitude 039º 41.00' W

**Depth:** 17 meters
**Seabed nature:** Sand/mud

### 5.3.3 Forbidden anchorage area

The anchorage is prohibited between the monobuoy and the coast (270°), because there is a pipeline and hydraulic connections.

### 5.3.4 Navigational aids

**São Mateus Lighthouse**

→ # order: 1852

→ Position: Lat.: 18°36,86S – Long.: 039°43,88W

Features:

→ White, fiberglass cylindrical tower with an embodied horizontal strip > LP. (2) B.

→ 15 s

→ B. 1.0 – Ecl. 3.0

→ B. 1.0 – Ecl. 10.0

→ Altitude – 14m

→ Height – 7m

→ Luminous scope – 15M

**SPM (Monobuoy) SBM-2**

→ # order: 1853

→ Position: Lat.: 18°58.59S – Long.: 039°42.45W

Features:

→ Yellow SPM

→ 3 s

→ A. 0.5 – Ecl. 2.5

→ Luminous scope – 5M

**Suçuraca Lighthouse**

→ # order: 1854

→ Position: Lat.: 19°05.80S – Long.: 039°43.38W

Features:

→ White, reinforced concrete quadrangular tower with black, horizontal strip > LP. (2) B

→ 30 s

→ B. 1.0 – Ecl. 9.0

→ B. 1.0 Ecl. 19.0

→ Altitude – 64m

→ Height – 40m

→ Luminous scope – 24M

| #e Order and International | Nautical Map Name | Luminous Feature | Luminous Scope | Comments |
|---|---|---|---|---|
| 1,852 | São Mateus 22,800 | Lp (2) B | 14 | TWhite, fiberglass cylindrical tower with an embodied horizontal strip |
| 1,853 | Barra Nova 22,800 | Lp. A. | 5 | Yellow SPM |
| 1,854 | Suçuraca 22,800 | Lp (2) B. | 24 | White, reinforced concrete quadrangular tower with a black horizontal strip |

### 5.3.5 Port control or VTS

There is no Port Control of the Maritime Authority in the TNC monobuoy location.

### 5.3.6 Pilotage

There is no pilotage service provided at the Norte Capixaba Teminal.

The maneuvers of mooring and unmooring the ships are performed by a (mooring máster and loading master), duly capacitated, who offers to the ship captains his knowledge and experience about the place, guiding the maneuvers of approach, mooring and putting off, coordinating the operations of connecting and disconnecting the short hoses.

The Captain is solely responsible for the maneuvers and is in charge of all the information to the Mooring Master about any peculiarity, specific conditions or existing difficulties, such as: machine and boiler failures, problems or damages to navigational aid equipment, mooring lines, or any other element that may be a hazard when it comes to maneuvering and mooring, etc.

The use of the services of the mooring master is mandatory for all the ships which intend to operate in the Norte Capixaba Terminal.

The Mooring Master will embark, for conducting the mooring maneuver, in a point within the anchorage area.

The Mooring Master will remain onboard throughout the loading operation until the ship leaves the monobuoy.

### 5.3.7 Tugs

There is a tug contracted for assisting the mooring and putting off maneuvers at the monobuoy.

The Terminal's supporting vessels station is located at Portocel, city of Aracruz.

There is no availability of additional tugs or launches for transporting staff or material, except when handling emergency contingencies and by management decision. There are no other services in the SPM of the TNC.

### 5.3.8 Navigation risks

Constant traffic of pusher tugs transporting barges between the Terminals of Portocel (ES), Aracruz (ES) and Belmonte(BA), Caravelas (BA).

Fixed oil exploration platform at SE of the monobuoy.

### 5.3.9 General restrictions

Mooring maneuvers can only be carried out in daylight (Norma Petrobras N-2562).

The maneuver of putting off can take place at any time.

Meteorological conditions can be a limit for mooring, as per the evaluation of the mooring master:

→ Maximum wind speed: force 7 in the Beaufort scale.

→ State of the sea (height of the wave/swell) corresponding to force 6 on the Beaufort scale (height means exceeding 2.5 meters). The heavy sea, with small swell, and the white foam of the waves starts to spread in strips in the same direction as the wind.

**Maximum ship dimensions for operating at the monobuoy:**

→ Deadweight tonnage: 80,000 tonnes

→ Maximum draft: 12.00 m

## 5.4 Environmental Factors

### 5.4.1 Meteorological information

The climate of the Brazilian seacoast in this region is characterized by the existence of two predominant seasons, rainy summers and dry winters, with mild temperatures.

### 5.4.2 Predominant winds

The predominant wind in the area is the NE with the annual average of 12 knots of speed, calculated based upon the data extracted from the database of OCEANOP.

In the winter months, it is common for cold fronts to arrive, which make the wind move from NE to N/NW, when the front approaches, and S/SW when it passes, requiring additional care when exceeding 25 knots average speed.

### 5.4.3 Waves and swell

In the winter months, owing to the cold fronts, swell forms coming from the S-SW with amplitudes which come to exceed 3m, which can make it unfeasible to moor at the TNC.

### 5.4.4 Seas and currents

The maximum variance between full and low tide is 2 m. The average variance is approximately 1.5 m. The table of the tides for the TNC is that of DHN, corresponding to Barra do Riacho (ES). The currents usually come from the North quadrant, but can change with the occurrence of storms coming from the South/SE quadrant.

There may also be variances in the direction and intensity of the current arising from changes in tides.

### 5.4.5 Rainfall

The predominant feature is short and sparse showers, heavy and long periods of rain being rare.

### 5.4.6 Rainstorms

Rainstorms usually occur in the winter season months, with greater incidence starting in July. In July and August, it is common periods up to 15 days with wave heights greater than 2.0 m, and up to 7 days with wave heights above 3 m.

### 5.4.7 Lightning storms

Such storms are not common, but may occur during the passage of cold fronts.

### 5.4.8 Visibility

It is rare for visibility to be limited, being able to occur during squalls or upon unusual occasions of fog

### 5.4.9 Temperature

The annual average temperature is around 26ºC.

### 5.4.10 Winter season

The climatic conditions of the winter along the coast are influenced by the passing of cold fronts associated with low pressure zones every 15 days on average. These depressions are characterized by strong winds of the South/Southeast quadrant or South/Southeast, Winds with a force which varies from 6 to 10 on the Beaufort scale.

### 5.4.11 Spring season

In this period, the sea remains calm in the coastal waters with little influence of sea and land breezes. The typical winter conditions vary quickly during the spring, being able to cause bad weather.

### 5.4.12 Summer season

The summer is marked by specific climatic conditions, the state of the sea being little influenced by the passing of winds of the South/Southeast quadrant, features of cold front and daily breezes along the coast.

### 5.4.13 Autumn season

Calm sea prevails on the coastal waters during this period. The passage of typical winter disturbances increases slowly in terms of frequency during this season and may cause short periods of bad weather in April, and especially in May, similarly to the conditions described for the winter season.

### 5.4.14 Fog

Fog is a relatively rare phenomenon in the region. It occurs when hot and humid winds of slow movement (speed under 1.0 knot) come into contact with a relatively colder surface, becoming condensed.

Fog usually appears on the coastal waters and the coastline.

When it occurs on land (on the coastline) it can hide nautical signals used as a reference for landing. In these cases, it usually occurs during the morning dissipating with the heating of the surface by the sunrays. It is rare for fog and mist to occur on land in the afternoon.

When it occurs on coastal waters, of which the temperature remains constant, with small annual variances, it can take a little longer, depending upon the occurrence of winds to dissipate, being able to occur at any moment of the day or night.

In this case, it can make it unfeasible to approach the SPM, which does not have telemetric equipment indicating its position and the local environmental conditions.

There is a certain seasonality concerning the days with fog with a minimum in November/December and a maximum from April to June, with variable conditions in the other months. The month with the greatest concentration of days with fog is April, when periods of, on average, two to three days with fog are frequent.

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# Description of the Terminal

## 6.1 General Description

Located on the beach of Campo Grande, in the island of the same name, in the municipality of São Mateus, to the south of the small town of Barra Nova, the TNC is operated by Transpetro.

All the load and discharge operations are carried out in compliance with the guidelines and instructions from the terminal's Management.

The monobuoy installed at the TNC serves as an oceanic terminal for mooring ships aimed at carrying the oil proceeding from the onshore and maritime fields at the north of Espírito Santo.

The monobuoy is fastened by eight (8) anchorage lines, at a water depth of 16 m, and is connected to a Plem that receives the oil from the shore via rigid pipes. The Plem to SBM-2 connection is made by two lines of flexible underwater hoses, in a complacent configuration called "Chinese Lantern".

The Monobuoy anchoring system consists on 8 x mooring lines (3" x 272 m), using 15-tonne Vryhof's Stevpris Anchors as fastening point on the seabed.

The general features of the Monobuoy anchoring system are:

→ **Anchorage lines:** 8 lines comprised by 120 + 152 mooring rope 3" R4
8 x 15-tonne Stevpris Anchors

→ **Water depth:** 16 meters

→ **Pre-tension:** 100 kN

→ **Vertical anchorage load:** 345 kN

→ **Balance Draft:** 3 m

→ **Free Board:** 2.30 m

→ **Coordinates:** Latitude 18º 58.67' S / Longitude 039º 42.37' W

## 6.2 Project's Anchorage Chart

| Line | Azimute (°) | Radius Anchorage (m) | Pré-Traction (kN) | Angle on Top (°) | Latitude | Longitude |
|---|---|---|---|---|---|---|
| 1 | 25 | 301.7 | 100 | 29.4 | 18° 58.53' S | 039° 42.30' W |
| 2 | 70 | 301.7 | 100 | 29.4 | 18° 58.62' S | 039° 42.22' W |
| 3 | 115 | 301.7 | 100 | 29.4 | 18° 58.74' S | 039° 42.22' W |
| 4 | 160 | 301.7 | 100 | 29.4 | 18° 58.82' S | 039° 42.32' W |
| 5 | 205 | 301.7 | 100 | 29.4 | 18° 58.81' S | 039° 42.44' W |
| 6 | 250 | 301.7 | 100 | 29.4 | 18° 58.73' S | 039° 42.53' W |
| 7 | 295 | 301.7 | 100 | 29.4 | 18° 58.63' S | 039° 42.52' W |
| 8 | 340 | 301.7 | 100 | 29.4 | 18° 58.53' S | 039° 42.43' W |

## 6.3 Loading System

The loading operations will be carried out by using a Relieving Ship, directly connected to the monobuoy, and receiving the product from the Terminal (TNC). There will not be any operation in parallel.

Three main segments are defined in the loading line:

### 6.3.1 Pipeline proceeding from the shore to the Plem

→ The pipeline features are 16' of diameter, API SL 6.X65 steel.

### 6.3.2 Underwater hoses between the Plem and the monobuoy

→ Chinese Lantern: 2 (two) lines, each one with 2 (two) underwater hoses with collar and floaters, 16" diameter #300 (double case).

### 6.3.3 Hose line between the monobuoy and the tanker

→ 1 (one) underwater hose, 20" diameter #300, double case;

→ 22 (twenty-two) Standart hoses, 20" diameter #300, double case;

→ 1 (one) reduction hose 20"/16"#300, double case;

→ Tail;

→ T End; and

→ Butterfly valve, reel and blank flange 16".

### 6.3.4 Mooring system

For offloading operations, the Relieving Ship will be moored to the monobuoy by Hawser ropes, where the line configuration is described below.

### 6.3.5 Loading system

The flow from the onshore tanks to the ship is made by the motor-pump sets, with average nominal flow of 800m$^3$/h each, for light oil, and 650m$^3$/h for heavy oil.

## 6.4 Physical Details – Berth

→ **Terminal:** TA/TNC;

→ **Berth:** monobuoy SBM-2;

→ **Year of installation:** 2006;

→ **Diameter of the SPM:** 12.5 meters;

→ **Depth:** 16 m;

→ **Products:** Crude ESSA, Crude FAL.

## 6.5 Berthing and Mooring Arrangements

| Berth # | Requires Pilot for Maneuverings | Ship Size DWT (max.) | Number and BP of Tugs | | | | Approach (max.) | Mooring Points | | | Mooring Lines | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Berthing | | Unberthing | | Speed | Angle | Bollards | Hooks | Line | Breast | Spring |
| | | | N# | BP | N# | BP | (m/s) | (°) | | | | | |
| Mono-buoy | No *1 | 80,000 | 1 | 30t | 1 | 30t | 1' | n/a | n/a | n/a | 1 | – | – |

*1 – Help to the berthing and pull-out maneuvers, and follow-up of environmental conditions carried out by the Captain of Maneuvers.

## 6.6 Features of Berth for Loading and Discharging

| Berth | Products | Hose 300 # | Receive and Send | Temperature | | Flow Maximum ($m^3/h$) | Pressure Maximum |
|---|---|---|---|---|---|---|---|
| | | | | Minimum | Maximum | | |
| Monobuoy | Cru ESSA | 1 x 16" | Send | 20ºC | 38ºC | 1,600 | 20 bar |
| Monobuoy | Cru FAL | 1 x 16" | Send | 20ºC | 65ºC | 1,300 | 20 bar |

Note: Line pressure at the Terminal

## 6.7 Management and Control

The Terminal is responsible for the operation, by means of the Operations Control Center (CCO), which supervises and manages the operation, controlling the pumps, the quantities moved and the hourly flow, attending on channel 16 VHF.

The CCO is located in the tanking area, at about 3.5 km from the SPM. In this center there is the shift supervisor together with the operators responsible for controlling all the operations of the Terminal, by means of the supervisory system.

## 6.8 Major Risks

The main risks associated with the staying of the ships during the operations in the TNC are related to changes in the meteorological conditions, as variance in the direction of the wind and in the amplitudes of the swell, commonly occurring between May and October. The presence of billows (E/SE – S/SE) and winds of medium intensity is decisive for the ship remaining in the Terminal.

As the result of the action of these climatic determinants (winds and swell), great oscillations can occur in the tensions of the mooring and short hoses, making it unfeasible to maintain the operation of loading/unloading.

So, the operation should be interrupted and, when relevant and as the Captain and Mooring Master decide, the short hose disconnected and the ship unmoored, waiting for better weather conditions for a new mooring.

During all the period that they are at the Terminal, the ships should monitor the weather forecasts for the region of the Delta area of the Center of Hydrography and Navigation of the DHN.

The Terminal also has a weather forecast service updated daily. Such forecasts can be requested through channel 16 or 10 of VHF, or during the operation, through the mooring master.

7

# PROCEDURES

During the ship laytime at the monobuoy, various actions are carried out to make it possible to operate safely and manage the risks, in order to minimize them. At every stage, as described in the sub-items below, measures are taken so as to facilitate the operations and plan them adequately.

## 7.1 Before Arrival

**7.1.1** Ships heading to the TNC's monobuoy must indicate their estimated time of arrival (ETA) 72 and 48 hours in advance, directly to the respective agent. Change to or confirmation of the ship's arrival shall be communicated at least 24 hours in advance. The ETA information must specify whether the time informed is local or UTC.

**7.1.2** Onboard repairs and cargo tank washing on the ship may not be executed with the ship moored to the monobuoy.

## 7.2 Arrival

**7.2.1** The agents inform the port authorities about the ship's arrival. Since this is an ocean Terminal, there is no onboard visit by the authorities. The maritime agency effects the dispatch.

**7.2.2** Information about the ship to be sent to the Terminal is described in Appendix E.

## 7.3 Mooring

### 7.3.1 Before mooring

***7.3.1.1*** The ship must have a crane or derricks (minimum 10 tonnes) ready for use in order to assist in connecting the hose to the manifold aboard the ship.

***7.3.1.2*** The manifolds must be equipped with an ANSI 300# standard flange, 16 inches in diameter.

***7.3.1.3*** The ship must provide windlasses, winches, brakes and jaws ready for use, as these are crucial for good mooring.

***7.3.1.4*** The captain must prepare and leave ready the towing cables, messengers, guide cables and heaving lines in the prow and poop.

***7.3.1.5*** Leave accommodation ready for the Mooring Master and the mooring team (five people), who will remain onboard during the loading operation.

### 7.3.2 Mooring maneuver

The mooring at the SPM can only be executed in daylight (Standard Petrobras N-2562). The maneuver of putting off from the SPM can occur at any time of the day or night.

*7.3.2.1 Mooring*

The ship is moored to the SPM by a polyamide Hawser, 21" in circumference, 90 m long, with floats and complemented by accessories necessary for handling and mooring ships.

The moorong master will guide the ship regarding the method to be followed for mooring at the SPM:

a) The ship is positioned within the Mooring Master's embarkation area, in a shadow location, favorable for the embarkation;

b) The Mooring Master comes aboard the supporting tug, which will be also used for assisting the transfer operations for the materials and equipment to be used in the mooring and connection maneuves;

c) The ship Captain provides to the Mooring Master a report about the major ship features;

d) The ship towing system is prepared;

e) The supporting boat waits the ship arrival at near 200 m from the monobuoy in order to receive the messenger line from the ship, which will be connected to the messenger line of the Hawser rope;

f) The supporting tug catches the messenger of the hose line by pulling the line in the opposite direction of the ship's approaching route to the monobuoy.

g) At 0.5 mile, with maximum ship speed of 1.5 knot:
The ship must be equipped with a polypropylene messenger line (10" X 220 m), one steel loop and one duct prepared to be lowered to the supporting boat.

h) At 250 m:
The supporting boat is positioned for receiving the ship's messenger line. The ship lowers the messenger line to the supporting boat. The supporting boat connects the ship's messenger line to the monobuoy's messenger line, and launches the connected lines into the water. It moves away from the maneuvering area, and is positioned in a safe location, waiting for instructions. The messenger line lifting operation starts.

i) At 90 m:
The ship is positioned in the mooring location and positions the mooring section of the mooring system in the Smith Bracket. When the ship is equipped with hydraulic jaw, the messenger line shall be disconnected from the mooring section of the mooring system, thus enabling fast putting off in case of emergency. The supporting tug transfers the hose line to the ship and starts the connection. The supporting boat is connected to the ship's stern.

### 7.3.3 Ship/land access

Considering the particularities of the region of the localization of the SPMs – at open sea and not sheltered – the embarking and disembarking of staff is only advisable in cases of extreme necessity and when the sea and wind conditions allow it.

The distance of the nearest support point for disembarking (Barra do Riacho) is located at 60 miles of navigation, as the region near the SPM is not deep enough to land support boats.

If the disembarkation is imperative for a reason which justifies all the logistics involved, the ship captain must contact his agent so that a launch and land transport service is made available, the Supervisor of the terminal having to be informed of the situation, in order to take the measures required to facilitate the transportation of those disembarked at the Barra do Riacho Terminal.

All the costs involved in these logistics shall be the responsibility of the ship, which shall make them formal through its agent.

## 7.4 Connecting the Hoses

The ship manifolds shall be ready to connect before the mooring is concluded, with the cranes tested and ready to operate.

## 7.5 Before Cargo Transfer

**7.5.1** The hoses are electrically discontinuous.

**7.5.2** The connection (made via quick coupling) is carried out by the Terminal's mooring team with the necessary support of the personnel onboard. The hose shall be supported by the on-board derrick or crane during the entire operation.

Soon after the ship is moored, the line will be lifted to the height of the derrick or crane veranda. The loading hose can be lifted and connected by the port side.

**7.5.3** The on-board tank measurements/inspections for release purposes will be carried out upon the initial release, and all the safety precautions shall be correctly complied with.

**7.5.4** It is necessary to fill in the Ship/Terminal Safety Inspection List (Item 26.3.3 of Isgott).

After the Mooring Master has carried out the safety inspection based on the Isgott checklist, the terminal will not authorize the ship to start its operations if there are pending issues not solved by the crew.

**7.5.5** In order to start the transfer, the Notice of Readiness must be signed. The loading operation cannot start without this permission and the agreement between the ship and the Terminal.

**7.5.6** Since this is an open sea Terminal (unsheltered), the ship must keep its engine ready during the entire operation for any emergency.

## 76 Cargo Transfer

**7.6.1** During the loading, the Terminal will maintain a man of its mooring team attentive to the cargo cables and short hoses.

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

**7.6.3** During loading, the Terminal and support boats will keep the VHF transceiver connected to the channel indicated by the Mooring Master for this purpose. A test will

be carried out between the ship, the Terminal and the support boats, over this channel on an hourly basis.

**7.6.4** During cargo transfer, the flows on both sides of the operation are checked at hourly intervals, and the parties will make comparisons. According to the system used, there will be a limiting parameter for operational control. Any changes in the operating conditions must be communicated and documented between the parties. It is expressly forbidden to close valves that may cause counter-pressure in the system during the operation.

**7.6.5** Loading/discharging ballast water is permitted in the TNC. De-ballasting the ship during the operation assumes that the Captain is fully aware that the quality of the water discharged into the sea is compatible and satisfactory. This water shall be free of oils and/or oily residues, as well as pathogenic organisms and germs that might alter the microbiological balance of the Region, thereby damaging the marine fauna and flora, with a negative impact on the local Community and the marine influence area of the Port.

The Terminal can at any time, and must when the apparent ballast conditions suggest possible contamination of the waters, request the copy of the Ballast Waters Report, in compliance with Standard-08 chapter-3, safeguarding its interests against possible questions.

**7.6.6** The Terminal does not have facilities for receiving oily residues (slop) or sewage.

**7.6.7** The washing of the cargo tank of the ship moored at the TNC is not allowed in routine conditions. However, the operation of COW will be able to be allowed provided that it is authorized by the programming, approved by the GIAONT (represented by the Mooring Master) and authorized by the Supervision of the Terminal, after consulting the Management.

**7.6.8** The Terminal administration does not allow repairs to be carried out using fire, electric or oxyacetylene welding, nor does it allow the propulsion and control systems of ships to be out of commission.

**7.6.9** Check the fulfillment of the ship/shore safety inspections during the ship operation. (According to appendix A from "Isgott").

**7.6.10** Among the environmental limits and criteria which can lead to the stoppage of the transfer operations during the stay of the ship, as per the evaluation of the Captain and Mooring Master, we can specify:

1) wind speed exceeding 7, on the Beaufort scale (about 28 knots);
2) waves with a real height exceeding 2.5 m;
3) static storm with electrical discharges coming from clouds of intensive convective formation, cumulus type ("heavy" dark clouds).

**7.6.11** In any emergency situation, the Terminal can interrupt the operations, so that all the resources can be devoted to reducing a possible accident.

## 7.7 Cargo Measurement and Documentation

**7.7.1** When the operation is finished, the draining of the loading hoses used must commence. The terminal team will close the manifold valve. The ship's representative must see to draining the onboard section and give the ready-to-disconnect signal.

**7.7.2** The final onboard measurements will be carried out by the ship's personnel, accompanied by the Mooring Master. The material used must be properly grounded, and the measurement instruments must be explosion-proof. The final release of the ship must occur after matching the quantities moved and complementing the laytime documentation.

## 7.8 Putting off Maneuver

**7.8.1** The putting off maneuver can be executed at any moment, as per the sea weather conditions determined by the captain and mooring master.

**7.8.2** In suitable meteorological conditions, the mooring master usually starts the putting off maneuver straight after the end of the final release, i.e., after filling the documents.

**7.8.3** The disembarkation of staff and material occurs beside the SPMs, in a safe place, indicated by the mooring master, in common agreement with the ship's captain.

## 7.9 Compliance with the ISPS Code

TA/TNC has implemented corporate safety protection measures applicable to ships and port facilities, in compliance with the requirements of the International Maritime Organization – IMO, by adopting the ISPS – International Ships and Port Facilities Code.

When required, these protection measures may be activated by the Ship, via Port Facility Security Officer (PFSO), or VHF radio, channel 15.

Usually, TA/TNC operates at safety level 01.

The exchange of information between the ship and the terminal, owing to the features of the installations, which make it impossible for the PFSO to go aboard, shall be executed by email or fax.

For further details, the Port Facility Security Officer (PFSO), who is qualified according to the requirements stipulated by the IMO, may be contacted:

→ Phone: (55 27) 3048-9529.

→ Fax: (55 27) 3048-9525.

8

# Port or Anchorage Area Organization

## 8.1 Port Control or VTS

There is no Port Control by the Maritime Authority at the TNC. The movement of ships is controlled by the Terminal.

## 8.2 Maritime Authority

**8.2.1** The Maritime Authority to which the Terminal is subordinated is the Harbor Master of the State of Espírito Santo.

**8.2.2** Since this is an ocean Terminal, there is no onboard visit by the authorities. The maritime agency effects the dispatch.

**8.2.3** The Harbormaster of Espírito Santo is the representative of the maritime authority in the limits of the SPM of the TNC, being responsible for checking the ship regarding compliance with the domestic maritime legislation and the international conventions ratified by Brazil, as well as determining actions and recording those responsible, in the case of any incident which occurs within the limits of the Terminal.

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## 8.3 Pilotage

There is no pilotage service at the SPM of the TNC. The mooring and unmooring maneuvers of the ships must be executed by a mooring master who offers the ship captains his knowledge and experience about the place.

## 8.4 Tugs and other Maritime Services

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

Tug Services

| Owner/Operator | Name | Type | Total HP/KWP | Static Traction (Bollard Pull) | Approved by Transpetro? |
|---|---|---|---|---|---|
| Tranship | TS Fiel | Convencional | 1,800 HP | 31 t | Yes |

### 8.4.2 Supply of drinking water

It is possible to supply drinking water in small quantities, in emergency cases and when requested beforehand. The supply shall be by means of a tug contracted for this purpose by the ship's agent, with prior communication to the Terminal and the Mooring Master.

### 8.4.3 Medical-hospital assistance

Medical or hospital assistance will only be provided if there is an emergency.

Transpetro will provide the resources available at the place for attendance.

**8.4.4** The other relevant maritime services, such as: divers, ship repairs, supply, etc., are not available at the SPM of the TNC, being able to be contracted at Vitória port, about 90 miles to the south of the TNC.

9

# Emergency and Combat Planning

## 9.1 Emergency Contacts

| Organization | Operation Times | Identification Acronym | Telephone (55 27) | Fax (55 27) | Cellular (55 27) | VHF/UHF | |
|---|---|---|---|---|---|---|---|
| | | | | | | Call | Conversation |
| Support Vessels | 24 hours | TS FIEL | – | – | 9970-2178 | 16 | 9 |
| Terminal Control Room | 24 hours | TNC | 3048 9508 | 3048 9524 | 9944 3034 | 16 | 9 |
| Military Police | 24 hours | PM | 190 | – | – | – | – |
| Civil Police | 24 hours | PC | 147 | – | – | – | – |
| Federal Police | 24 hours | PF | 3331 8032 | 3331 8033 | – | – | – |
| Fire Department | 24 hours | PM | 193 | – | – | – | – |
| Harbor Master | 24 hours | CPES | 2124-6526 | 2124 6525 | – | – | – |
| Port Health | 24 hours | – | 3215 5259 | – | – | – | – |

## 9.2 Environmentally Sensitive Areas

In the PRE – Emergency Response Plan, the areas most sensible to an environmental impact are listed by sheets, which contain maps of environmental sensitivity, showing, as per the area selected, the points which are subject to the greatest impact when this type of event occurs on the coast of Espírito Santo.

## 9.3 General Description of the Emergency Combat Organization

The responsibilities concerning the different contingencies listed in the PRE – Emergency Response Plan are described in the table below:

**Incidents within the TNC's area**

| Incident Type | Organization in Charge | Other Organizations Involved | | | |
|---|---|---|---|---|---|
| Collision | Harbor Master | Fire Department | Transpetro | – | – |
| Vessel Running Aground | Harbor Master | Fire Department | Transpetro | – | – |
| Vessel Sinking | Harbor Master | Fire Department | Transpetro | – | – |
| Fire Onboard | Ship | Transpetro | Fire Department | Harbor Master | – |
| Fire in the Monobuoy | Terminal | Fire Department | Transpetro | Harbor Master | |
| Pollution | Terminal and ship | Harbor Master | Iema | Proanar | Transpetro |

## 9.4 Emergency Plans

**9.4.1** The PRE – Emergency Response Plan – is the plan of the Terminal DTO/TA/OP1/ES/OPES – TNC for combating emergency situations at all its facilities. It is available in all the operational areas, affixed on notice boards located at the entrance to the operation rooms, maintenance and administrative buildings. The local SMS (health, environment and safety activity) is responsible for its updating.

**9.4.2** As this is an ocean Terminal, the ships must keep their engines running during the entire operation, for any emergency.

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

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

**9.4.3** The terminal provides one pollution-combating vessel, in permanent readiness state, which is equipped with modern equipment and several facilities to be used in case of accidental oil spillage. Periodically, an intensive training program is carried out, which equips the terminal employees to act according to the PRE.

**9.4.4** Medical or hospital services will be provided only in case of emergency. Transpetro will provide all the locally available resources for that purpose.

## 9.5 Public Resources for Combating Emergencies

For other emergencies, the public organizations offer resources for which they are designated.

### 9.5.1 Local Emergency Services

The Fire Department, Police and the Harbor Master have the proper resources and are called into action according to the table in section 9.1.

### 9.5.2 Mutual Support Plans

At the SBM-2 monobuoy, Proamar can be called into action- this is a group of companies brought together for contingencies and emergencies -, with resources that may be used for mitigating sea pollution occurrences.

The institutions listed below are an integral part of Proamar (Mutual Support Plan) and their resources are available as previously agreed upon in this plan:

→ Petrobras/Transpetro

→ VALE

→ Arcelor Mital

→ Samarco

→ Portocel

→ TPS

→ Technip

## 9.6 Combat Capacity of the Terminal

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

## 9.7 Combat Capacity of the Environment Agency

The Environment Agency of Espírito Santo (Iema) does not have the resources for combating oil spillage into the sea.

## 9.8 Resources Available from the Mutual Support Plans at other Terminals

The resources available at other terminals for supporting pollution emergencies that occur near the terminal are listed in the local PRE.

## 9.9 Combating Medium and Large-Size Oil Spillage.

In such events, regional resources from Transpetro/Petrobras are requested. These resources, their readiness and how they are called into action are described in the PRE.

## 9.10 Combating Other Large-Size Emergencies

The PRE of DTO/TA/OP1/ES/OPES – TNC lists the actions and those responsible for each type of foreseen event that may occur within their unit, duct range or vessels and which may involve third parties. For events not foreseen in this document, Transpetro/ Petrobras will provide all the national or international resources within its reach.

10

# CONTACTS

## 10.1 Terminal

| Location | Contact | Telephone (55 27) | Fax (55 27) | E-mail | VHF/UHF Channels | |
|---|---|---|---|---|---|---|
| | | | | | Call | Conversation |
| Coordination | Coordinator | 3048-9505 | 3048-9532 | pessanha@petrobras.com.br | 16 | 9 |
| Operations Room | Operator | 3048-9508 | 3048-9525 | – | 16 | To be agreed |

## 10.2 Port Services

| Location | Contact | Telephone (55 27) | Fax (55 27) | E-mail | VHF/UHF Channels | |
|---|---|---|---|---|---|---|
| | | | | | Call | Conversation |
| Terminal | Coordinator | 3048-9505 | 3048-9532 | pessanha@petrobras.com.br | 16 | 9 |
| Port Captain | Harbor Master | 2124-6426 | 2124-6500 | – | 16 | 11 |
| Tugs | Tug Fiel | 9966-1704 | | | 16 | To be agreed |

## 10.3 Selected Navigation Agents and Suppliers

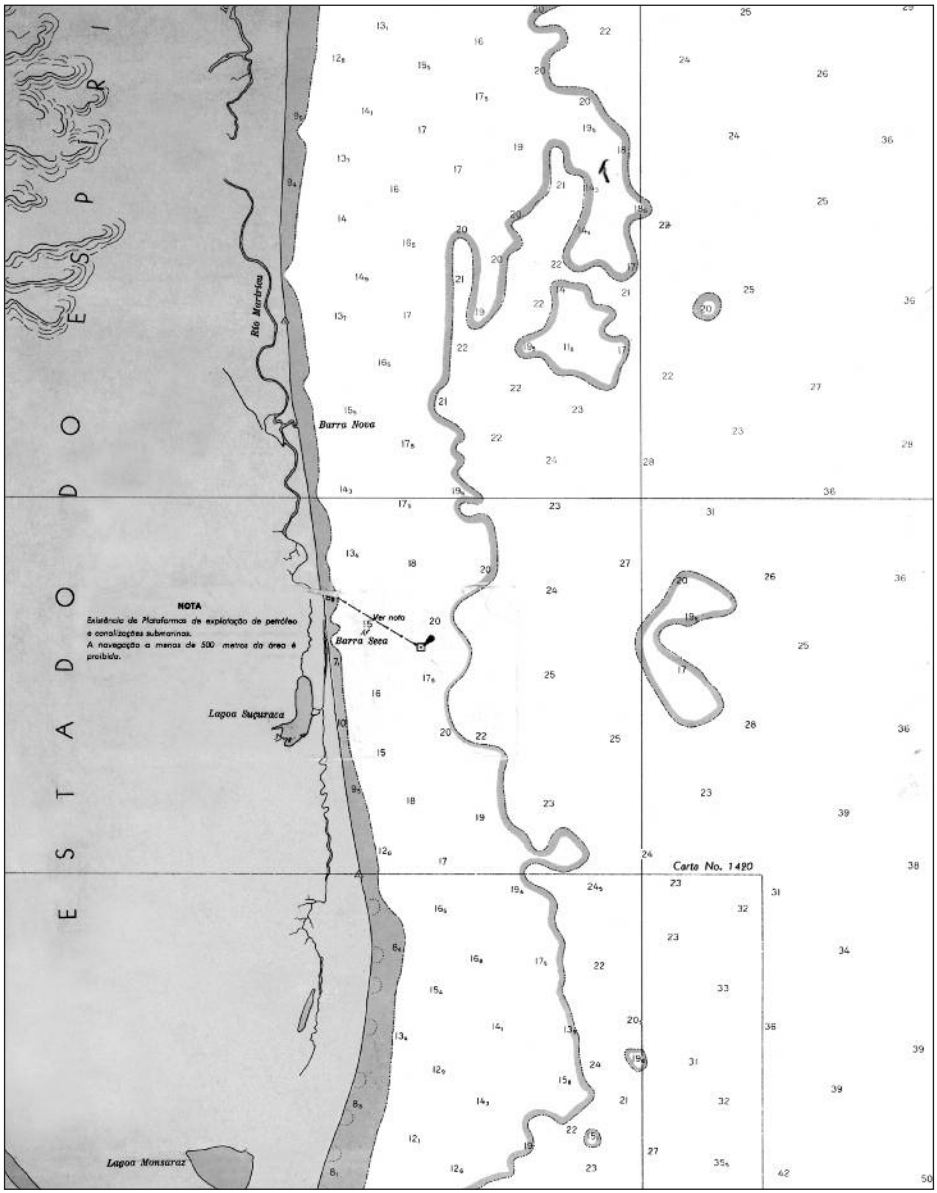
| Company | Business | Telephone (55 27) | Fax (55 27) | E-mail | VHF/UHF Channels | |
|---|---|---|---|---|---|---|
| | | | | | Call | Conversation |
| Petrobras Agency | Coordinator | 3295-5866<br>2122-5866 | – | agvitoria@petrobras.com.br | 16 | 69 |
| Petrobras Agency | Maritime Agent | 3295-5868<br>2122-5868 | 3235-4557 | – | 16 | 69 |
| Petrobras Agency | Maritime Agent | 9942-6214<br>9982-8995 | – | – | 16 | 69 |
| Not available | Large-Size Naval Repairs | – | – | – | – | – |
| Aquaport | Small Naval Repairs | 9989-7106 | – | aquaport@aquaport.com.br | – | – |
| Not available | Garbage disposal | – | – | – | – | – |
| Aquaport Greenworld | Divers | 9981-3311<br>3229-3182 | 9945-1999 | aquaport@aquaport.com.br | – | — |
| Vitserv | Divers | 3042-5209<br>9961-3755 | | | | |
| Vitserv | Mooring Agents | 3024-8279 | | | | |

## 10.4 Local Authorities, State and National Agencies

| Organization | Contact | Telephone (55 27) | Fax (55 27) | E-mail | VHF/UHF Channels | |
|---|---|---|---|---|---|---|
| | | | | | Call | Conversation |
| Police | – | 190 | – | – | – | – |
| Fire Department | – | 193 | – | – | – | – |
| Maritime Authority | Control station | 2124 6524 | 2124 6525 | | 16 | 11 |

# APPENDICES

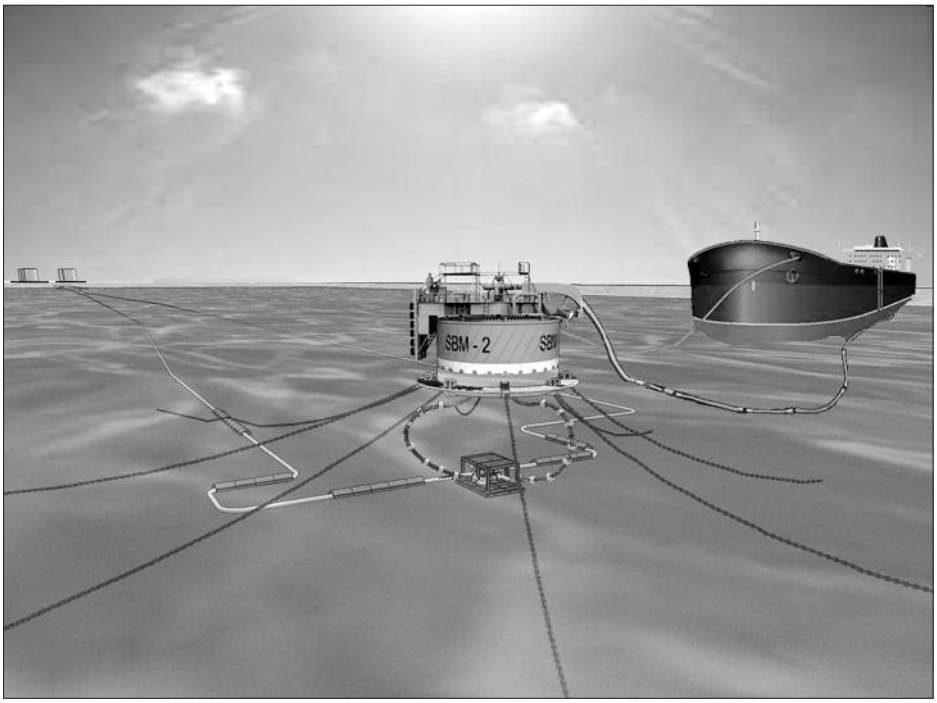
## A – Chart



## B – SBM-2


## C – Mooring at the SBM-2

## D – Diagram of mooring at the SBM-2



# E – Essential Terminal information for the ships

## Ship/Terminal Information Exchange

Item 3,1,4 of Isgott (Information from the Terminal to the ship before arrival)

| | | | | | |
|---|---|---|---|---|---|
| **Ship:** | | | | | |
| **From the Ocean Terminal:** | | | | | |
| **City:** | | **State:** | | **Country:** | |
| **Mooring berth** | | | | | |
| | Latitude: | | Longitude: | | |
| | Low tide draft: | (m) | Water salinity: | | (mg/l) |
| **Berthing board** | | | | | |
| | Port side: | Starboard: | According to the tide: | | |
| | Maximum speed when berthing: | | | | (m/s) |
| | Maximum angle when berthing: | | | | (°) |
| | Speed/angle indicator position: | | | | |
| **Tugs available for maneuvering** | | | | | |
| | Towing lines used in the maneuvers: | | | | |
| | Auxiliary vessels available for maneuvers: | | | | |
| | Call the ship's agency | | | | |
| **Mooring** | | | | | |
| | Number of mooring lines required: | | | | |
| | Line: | | Breast line: | | |
| | Spring line: | | Material: | | |
| **Terminal equipment available for mooring** | | | | | |
| | Bollards: | | Hooks: | | |
| **Additional mooring details** | | | | | |
| | | | | | |
| **Access ladder** | | | | | |
| | Terminal: | | Ship: | | |
| | Ship: | | Position: | | |
| **Connection details** | | | | | |
| | Hoses: | | Arms: | | |
| | Diameter: | | Pressure Class: | | |
| **Operating sequence** | | | | | |
| | Product: | Loading 1º: | $m^3$ | Discharging 1º: | $m^3$ |
| | Product: | Loading 2º: | $m^3$ | Discharging 2º: | $m^3$ |
| | Product: | Loading 3º: | $m^3$ | Discharging 3º: | $m^3$ |
| | Product: | Loading 4º: | $m^3$ | Discharging 4º: | $m^3$ |
| | Has the sequence been changed? | | Yes: ☐ | No: ☐ | |

| | | | | |
|---|---|---|---|---|
| **On-board tank measurement** | | | | |
| | Ship without inert gas system: Follow the recommendations in item 7,2,2 of Isgott. | | | |
| | Ship with inert gas system: Follow the recommendations in item 7,2,3 of Isgott. | | | |
| **Degassed tank required** | | | | |
| | Yes: | No: ☐ | | |
| **Berthed COW operations permitted?** | | | | |
| | Yes: Follow the recommendations in item 9,4 of Isgott. | | | |
| | No: ☐ | | | |
| **Tank washing permitted for berthed ships?** | | | | |
| | Yes: Follow the recommendations in item 9,5 of Isgott. | | | |
| | No: ☐ | | | |
| **Environmental wind condition limits** | | | | |
| | **Speed** | Knots: | Knots: | Knots: |
| | **Action** | Interruption: | Disconnection: | Unberthing: |
| **Environmental wave condition limits** | | | | |
| | **Height** | > m | > m | > m |
| | **Action** | Interruption: | Disconnection: | Unberthing: |
| **Operational limits (Oil and oil-by products)** | | | | |
| | **Variable** | Pressure > kgf/cm$^2$ | Flow > | Temperature: > ºC |
| | **Action** | Interruption: | Interruption: | Interruption: |
| **Operational limits (Product 2)** | | | | |
| | **Variable** | Pressure: > kgf/cm$^2$ | Flow: > | Temperature: > |
| | **Action** | Interruption: | Interruption: | Interruption: |
| **Possibility of receiving dirty ballast or slop?** | | | | |
| | **Yes** ☐ | Minimum fluidity: º | Maximum volume: | m$^3$ |
| | **No** ☐ | º | | m$^3$ |
| The product must be free of chlorinated or organo-chlorinated, or oxygenated solvents (ethanol, methanol and MTBE), machine residues contaminated with lubricant oil and metals, inorganic/organic chloride. | | | | |

| |
|---|
| Responsible for the information: |

## F – Essential information from the ship to the Terminal

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

Please, send via fax or e-mail to the Terminal Supervisor.

## G – 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:<br>Contaminants: | | |
| **Ballast** | | | |
| **Dirty Ballast:**<br>Quantity: | Temperature: | | **Segregated Ballast:**<br>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:<br>Flow:<br>Maximum temperature:<br>Minimum temperature: | **Terminal** | Pressure:<br>Flow:<br>Maximum temperature:<br>Minimum temperature: |

*continue*

| Operation sequence per product |
| --- |
| Quantity to be loaded/discharged:<br>Origin/destination tanks:<br>Onboard/onshore lines:<br>Loading arms/hoses used:<br>Operation forecasted to start/end: |
| **Complementary operating and safety information** |
| |

# H – Ship/terminal operating safety checklist

## BEFORE THE OPERATION

| | |
|---|---|
| **Vessel:** | |
| **Vov.:** | |
| **Moored** | |
| **Port:** | **Berth:** |
| **Operation:** | |

**INSTRUCTIONS FOR COMPLETION**

The safety of operations requires that all questions should be answered affirmatively. If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between the ship and the terminal. Where any questions is not considered to be applicable a note to that effect should be inserted in the remarks column.

A – The menthioned procedures and agreements shall be in writing and signed by both parties.

P – In the case of a negative answer the operation shall not be carried out without the permission of the Port Authority.

R – Indicates items to be rechecked at intervals not exceeding that agreed in the declaration.

## PHYSICAL CHECKS

| | Bulk Liquid – General | Ship | Terminal | Code | Remarks |
|---|---|---|---|---|---|
| 1 | Is there safe access between ship and shore? | | | R | |
| 2 | Is the ship securely moored and anchors in the hawse pipes and properly secured? | | | R | |
| 3 | Is there agreed ship/shore communication system operative? | | | AR | |
| 4 | Are the emergency towing-off pennants correctly rigged and positioned? | | | R | |
| 5 | Are the ship's fire hoses and fire-fighting equipment positioned and ready for immediate use? | | | R | |
| 6 | Are the terminal's fire-fighting equipment positioned and ready for immediate use? R | | | R | |
| 7 | Are the ship's cargo and bunker hoses/arms, pipelines and manifolds in good condition, properly rigged, appropriate for the service intended and (where appropriate) certificate checked? | | | | |
| 8 | Are terminal's cargo and bunker hoses/arms in good condition, properly rigged, appropriate for the service intended and (where appropriate) certificate checked? | | | | |

| | Bulk Liquid – General | Ship | Terminal | Code | Remarks |
|---|---|---|---|---|---|
| 9 | Is the cargo transfer system sufficiently isolated and drained to allow safe removal of blank flanges prior to connection? | | | | |
| 10 | Are scuppers and save alls on board effectively plugged and drip trays in position and empty? | | | R | |
| 11 | Will the temporarily removed scupper plugs be constantly monitored? | | | | |
| 12 | Are the shore spill containment and sumps correctly managed? | | | R | |
| 13 | Are the ship's unused cargo and bunker connections properly secured with blank flanges fully bolted, including the stern discharge line, if fitted? | | | | |
| 14 | Are the terminal's unused cargo and bunker connections properly secured with blank flanges fully bolted? | | | | |
| 15 | Are all cargo, ballast and bunker tank lids closed? | | | | |
| 16 | Are sea and overboard discharge valves, when not in use, closed and visibly secured? | | | | |
| 17 | Are all external doors, ports and windows in the accomodation, stores and machinery spaces closed? (Engine room vents may be open)? | | | R | |
| 18 | Are the ship's emergency fire control plans located externally? | | | | |
| | **Inert Gas System** | **Ship** | **Terminal** | **Code** | **Remarks** |
| 19 | Are the fixed IGS pressure and oxygen content recorders working | | | | |
| 20 | Are all cargo tanks atmospheres 8% or less oxygen content by volume and with positive? | | | | |

## ORAL VERIFICATION

| | Bulk Liquid – General | Ship | Terminal | Code | Remarks |
|---|---|---|---|---|---|
| 21 | Is the ship ready to move under its own power? | | | PR | |
| 22 | Is there an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal? | | | R | |
| 23 | Are there sufficient personnel on board and ashore to deal with an emergency? | | | R | |
| 24 | Have the procedures for cargo, bunker and ballast operations been agreed? | | | AR | |
| 25 | Have the emergency signal and shutdown procedure to be used by the ship and shore been explained and understood? | | | A | |
| 26 | Have the Material Safety Data Sheets (MSDS) for the cargo transfer been exchanged where requested? | | | | |
| 27 | Have the hazards associated with toxic substances in the cargo being handled been identified and understood? | | | | $H_2S$ Content ..... Benzene Content ..... |

| | Bulk Liquid – General | Ship | Terminal | Code | Remarks |
|---|---|---|---|---|---|
| 28 | Has an International Shore Fire Connection been provided? | | | | |
| 29 | Will the agreed tank venting system be used? | | | AR | Method ..... |
| 30 | Is the Ship capable of closed loading and is this to be complied with aplicable? | | | R | |
| 31 | Has the operation of the P/V system been verified? | | | | |
| 32 | Are Independent high level alarms, if fitted, operational and have been tested? | | | | |
| 33 | Are there adequate electrical insulation means in place in the ship / shore connection? | | | | |
| 34 | Are shore lines fitted with a non-return valve or have the procedures to avoid back filling been discussed? | | | | |
| 35 | Have smoking rooms been identified and are smoking requirements being observed? | | | AR | |
| 36 | Are naked light requirements being observed? | | | AR | |
| 37 | Are ship/shore telephones, mobile phones and pager requirements being observed? | | | AR | |
| 38 | Are hand torches (flashlights) of an approved type? | | | | |
| 39 | Are fixed VHF/UHF transceivers and AIS equipments on the correct power mode or switched off? | | | | |
| 40 | Are portable VHF/UHF transceivers of an approved type? | | | | |
| 41 | Are the ship's main radio transmitter aerials earthed and radars switched off? | | | | |
| 42 | Are electric cables to portable electrical equipment within the hazardous area disconnected from power? | | | | |
| 43 | Are window type air conditioning units disconnected? | | | | |
| 44 | Is positive pressure being maintained inside the accommodation, and are the air conditioning intakes, which may permit the entry of cargo vapours, closed? | | | | |
| 45 | Have measures being taken to ensure sufficient mechanical ventilation in the pump room? | | | R | |
| 46 | Is there provision for an emergency escape? | | | | |
| 47 | Have the maximum wind and swell criteria for operations been agreed? | | | A | Stop cargo at: ..... Disconnect at: ..... Unberth at: ..... |
| 48 | Have the security protocols been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate? | | | A | |
| 49 | Has a vapor return line been connected? | | | AR | |
| 50 | If a vapour return line is connected, have operating parameters been agreed? | | | AR | |

| | Bulk Liquid – General | Ship | Terminal | Code | Remarks |
|---|---|---|---|---|---|
| 51 | Is the Inert Gas System fully operational and in good working order? | | | P | |
| 52 | Are deck seals, or equivalent, in good working order? | | | R | |
| 53 | Are liquid levels in P/V BREAKERS correct? | | | R | |
| 54 | Have the fixed and portable oxygen analysers been calibrated and are working properly? | | | R | |
| 55 | Are all the individual tanks I.G. valves (if fitted) correctly set and locked? | | | R | |
| 56 | Are all personnel in charge of cargo operations aware that in the case of failure of the inert Gas Plant, should the discharge operations cease and the terminal advised? | | | | |
| | **Crude Oil Washing** | **Ship** | **Terminal** | **Code** | **Remarks** |
| 57 | Is the pre-arrival Crude Oil Washing check list, as contained in the approved COW manual, satisfatory completed? | | | | |
| 58 | Is the crude oil washing checklist for use before, during andd after crude oil washing, as containned in the approved crude oil washing manual, available and being used? | | | | |
| 59 | Are cargo manifolds pressure gauge in good working order? | | | | |
| | **Tank Cleaning** | **Ship** | **Terminal** | **Code** | **Remarks** |
| 60 | Are tank cleaning operations planned during ship's stay alongside the shore installations? If so, have the port authority and terminal been informed? | | Yes: ☐ No: ☐ | | |
| 61 | Are tank cleaning operations planned during the ship's stay alongside the shore installation? | | Yes: ☐ No: ☐ | | |
| 62 | If yes, have the procedures and approvals for tank cleaning been agreed? | | Yes: ☐ No: ☐ | | |
| 63 | Has permission been granted for gas freeing operations? | | Yes: ☐ No: ☐ | | |

## SEAL NUMBERS:

| | | |
|---|---|---|
| Seawage Tank | | Monitor de Lastro |
| Oil/Water Separator | | Emergency Bilge |
| Overboard Discharge Valve B/H | | |
| Inger 10043 / 92 | | |
| Hidrostatic Test On: | Pressure: | Log Book Registered: |

## DECLARATION

We have checked, where apropriate jointly, the items of the Check-List in accordance with the instructions and have satisfied ourselves that the entries we have made are correct to the best of our knowledge.

We have also made arrangements to carry out repetitive checks as necessary and agreed that those items coded R in the Check-List should be re-checked at intervals not exceeding ____ hours.

If, to our knowledge, the status of any item changes, we will immediately inform the other party.

| **For Ship** | **For Shore** |
|---|---|
| Name | Name |
| Rank | Rank |
| Signature | Signature |
| Date | Date |
| Hour | Hour |

| | | | |
|---|---|---|---|
| Date | | | |
| Time | | | |
| Initial for the ship | | | |
| Initials for terminal | | | |


BR
TRANSPETRO