TERMINAL INFORMATION BOOKLET

SÃO FRANCISCO DO SUL / TEFRAN MARINE TERMINAL

TA - SÃO FRANCISCO DO SUL

Full Terminal Address: Rua Felipe Mussse, 803
Ubatuba - São Francisco do Sul - Santa Catarina - Brazil
89240-00.
Phones: Tel: (47) 3233-5414 / 3233-5288
E-mail: sfsul@transpetro.com.br

Contacts

Organization	Time	Telephone / Fax	Mobile	VHF/ UHF Call Channel	VHF / UHF Talk Channel
TEFRAN Management	Working days 07:30 to 16:30	(47) 3233-7483	X	X	X
Nautical Advisor	Working days 07:30 to 16:30	(51) 2161-5583	(51) 99550-1145		
Mooring Master	24 h/7 d	X	X	X	X
Operational Control Center CCO	24 h/7 d	(47) 3233-5414	(47) 99178-3036	16	
Port Facility Security Officer - PFSO	Working days 07:30 to 16:30	(47) 99911-4256	X	x	x
Port Authority	**24 h / 7 d**	(47) 3444-2204	(47) 98844-5694	X	X
IBAMA	08:30 to 18:00	(47) 3433-3760 (47) 3444-2448	X	X	X
IMA - Environmental Institute of SC	08:00 to 17:00	(47) 3431-1441 (48) 3665-4190 OR 0800-644-8500	X	X	X

INTRODUÇÃO

This Port Information was prepared by Petrobras Transportes S.A. **(TRANSPETRO)**, which operates the **TEFRAN** Marine Terminal in the port of **SÃO FRANCISCO DO SUL**.

It contains essential information for ships seeking to operate at the terminal, and is distributed to the port's stakeholders, national and local authorities and the various branches of the company.

Port Information has versions in Portuguese and English.

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

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

TRANSPETRO will analyze any suggestions, recommendations or corrections to the subjects covered here, with a view to improving the information. If you find incorrect information that needs to be updated, please contact us:

SÃO FRANCISCO DO SUL Marine Terminal - TEFRAN
Rua Felipe Musse, 803 - Ubatuba - São Francisco do Sul - Santa Catarina - Brazil
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Petrobras Transportes S/A - TRANSPETRO

Av. Presidente Vargas, nº 328, Centro, CEP 20091-060, Rio de Janeiro - RJ Communication Office

Telephone numbers (021) 3211-9039 and (021) 3211-9000.

The latest version of this Port Information and the other **Transpetro** Terminals can be obtained at the following address:

https://transpetro.com.br/transpetro-institucional/nossas-atividades/dutos-e-terminais/informacoes-portuarias.htm

SUMMARY

REVIEWS

Review	Alterations	Date	Elaboration	Approval
V.0	Initial Version	02/07/2024	Capt. Rômulo Prazeres - Nautical Advisor ON Jacqueline Ferreira Vieira - C3JG Ives Marcelo Xavier - T2YN	Capt. Rômulo Prazeres - Nautical Advisor
V.1	Page 26, item 5.3: Inclusion of item 4.3.3 of the Mooring Equipment Guidelines-MEG Page 28, item 6.2: Inclusion of the text of Mooring hawser assemblies. Page 34, item 8.5: Inclusion of standard procedure for quick hose disconnection	15/05/2025	Capt. Rômulo Prazeres - Nautical Advisor ON Jacqueline Ferreira Vieira - C3JG Ives Marcelo Xavier - T2YN	Capt. Rômulo Prazeres - Nautical Advisor

1. EMERGENCY PROCEDURES

1.1 GERAL

EMERGENCY CONTACTS

Organization	Operation hours	Telephone	Mobile	VHF / UHF List	VHF / UHF Conversation
Port Authority	24 hours	(47) 34444-2204	(47) 98844-5694	16	TBC
Nautical Advisor	Working days 07:30 to 16:30	(51) 2161-5583	(51) 99550-1145	X	X
Mooring Master	24 hours	X	X	14	14
Port Facility Security Officer - PFSO	Working days 07:30 to 16:30	X	(47) 99911-4256	X	X
Operational Control Center	24 hours	(47) 3233-5414	(47) 99178-3036	14	14
Fire Brigade	24 hours	(47) 3444-2114	X	X	X
Civil Defense of São Francisco do Sul	24 hours	(47) 3471-2258	X	X	X
Police	24 hours	190	X	X	X
IBAMA	08:30 h to 18:00 h	(47) 3433-3760 3444-2448	X	X	X
IMA - Environmental Institute of SC	8:00 h to 17:00 h	(47) 3431-1441 (48) 3665-4190 OR 0800 - 644 - 8500	X	X	X

ENVIRONMENTALLY SENSITIVE AREAS

In the Emergency Response Plan for the São Francisco do Sul Marine Terminal Terminal, the areas most sensitive to an environmental impact are listed on sheets containing environmental sensitivity maps, showing, according to the area selected, the points that are subject to the greatest impact when this type of event occurs on the rivers, beaches and coves of the island of

São Francisco do Sul subject to the greatest impact when this type of event occurs on the rivers, beaches and inlets of the island of São Francisco do Sul.

The following sheets are available in this document:

- Acarai River
- Iperoba River
- Ubatuba River
- Enseada Beach
- Praia Grande

GENERAL DESCRIPTION OF THE EMERGENCY RESPONSE ORGANIZATION

Type of Incident	Responsible Organization	Other Organizations Involved				
Collision in Monobóia	Maritime Authority	Terminal	P&I	Ship's Agent	Civil Defense	ANP
Boat running aground	Maritime Authority	Terminal	P&I	Ship's Agent	Civil Defense	ANP
Sinking Vessel	Maritime Authority	Terminal	P&I	Ship's Agent	Civil Defense	Fire Brigade
Vessel fire	Maritime Authority	Terminal	Fire Brigade	Agent	P&I	X
Fire at Monobóia	Maritime Authority	Fire Brigade	SUPRG	Agent	Maritime Authority	X
Pollution	Maritime Authority	Terminal	P&I	IMA-SC	IBAMA	ANP

CONTINGENCY PLANS

The São Francisco do Sul Marine Terminal Emergency Response Plan is the plan for combating emergencies at all its facilities. It is available in all operational areas, on boards located at the entrances to the operation rooms (CCO), maintenance and administrative buildings. To briefly specify the Contingency Plans that apply to the vessel's operations on the monobuoy and the person responsible for updating them is the local SMS.

Emergency and fire-fighting equipment must be kept handy on deck while the ship is moored. The fire hoses should be extended, one forward and one aft, and the fire-fighting monitors should be directed towards the manifold.

A pollution response kit should be kept ready for use in the event of an oil spill. Every precaution should be taken to avoid oil pollution of sea waters.

The SAO FRANCISCO DO SUL MARINE TERMINAL has an Emergency Response Center (CRE) equipped with modern equipment and various facilities for use in accidental pollution. Intensive training sessions are held periodically to enable the terminal's employees to act in accordance with the PRE-EMERGENCY RESPONSE PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL. Located at a strategic point, it allows rapid action to combat emergencies. Its shed houses containment booms, oil collectors and other equipment needed for the work. Work and support vessels are anchored off the beach in the cove in a permanent state of readiness.

The terminal has a tugboat available, which in addition to assisting in mooring and unmooring ships, supports ships in *pull-back operations (station keeping)*, is equipped with containment booms, absorbent booms, a skimmer (oil collector) and is ready to act in the immediate aftermath of a possible oil spill. Two other smaller, faster boats are also nearby to carry out surveys and help launch barriers.

The terminal has an ambulance equipped for first aid. One nurse works in an administrative capacity, at times when there are more people due to maintenance services and works in these areas. The other cases are referred to the health center, located in São Francisco do Sul, about 15 km from the site.

LOCAL EMERGENCY SERVICES

As set out in the EMERGENCY CONTACTS table.

MARITIME MUTUAL SUPPORT PLANS

The resources available at other TRANSPETRO terminals to deal with pollution emergencies occurring in the vicinity of the terminal are listed in the PRE-EMERGENCY RESPONSE PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL.

1.2 OIL SPILLAGE AND STEAM RELEASE

The SAO FRANCISCO DO SUL MARINE TERMINAL has an Emergency Response Center (CRE) equipped with modern equipment and various facilities for use in accidental pollution.

In the event of an oil spill, the ship must immediately notify the Mooring Master and/or the Operator at the Terminal's CCO via VHF channel 14.

TERMINAL COMBAT CAPACITY

The resources available at the terminal for dealing with oil spills are listed in the PRE-EMERGENCY RESPONSE PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL,

which is available in all the administrative, operational and maintenance areas of the SAO FRANCISCO DO SUL MARINE TERMINAL.

TIER FIGHT 2

Organization designated to combat significant pollution.

Regional resources from TRANSPETRO / PETROBRAS are requested for these events. These resources, their readiness and how they are activated are set out in the PRE-EMERGENCY RESPONSE PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL.

TIER 3 FIGHT

An organization designed to combat major pollution.

National funds from TRANSPETRO / PETROBRAS are requested for these events. These resources, their readiness and how they are activated are set out in the PRE-EMERGENCY RESPONSE PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL.

COMBATING LARGE SPILLS

THE EMERGENCY RESPONSE PRE-PLAN FOR THE SAO FRANCISCO DO SUL MARINE TERMINAL lists the actions and the people responsible for each type of event that is expected to occur within its unit, within the pipeline strip or on vessels, and which involves third parties. For events not covered by this document, TRANSPETRO / PETROBRAS will make available all national or international resources within its reach.

1.3 FIRE AND EXPLOSION

See item 1.1 General/Emergency Plans

1.4 EVACUATIONS (EVACUATION ROUTE AND MAP OF ASSEMBLY POINTS)

If you need to know what resources are available at the Terminal, your representative will ask you for a copy of the document containing instructions for combating a particular emergency

1.5 COLLISION / CRADLE DAMAGE

If you need to know what resources are available at the Terminal, your representative will ask you for a copy of the document containing instructions for combating a particular emergency.

1.6 MEDICAL EMERGENCY

Medical/dental treatment or hospitalization can be obtained in São Francisco do Sul. Serious cases are usually referred to Joinville or Curitiba.

1.7 SECURITY BREACH

See item 8.15 **ISPS CODE COMPLIANCE**

1.8 MAN AT SEA

If you need to know what resources are available at the Terminal, your representative will ask you for a copy of the document containing instructions for combating a particular emergency.

1.9 EMERGENCY STOP (ESD)

Not applicable

1.10 INCIDENT NOTIFICATION POLICY

Your representative will ask you for a copy of the document containing instructions for a particular emergency.

2. Safety, Environment and Health Policies

2.1 INDIVIDUAL PROTECTION EQUIPMENT (PPE)

They must be used throughout the ship's stay.

2.2 TERMINAL ACCESS (SHORE CREW AND VISITORS)

On-board personnel are not allowed to go ashoref or any reason until the ship has been cleared by the port authorities. Luggage and parcels are subject to inspection by Terminal security guards and/or Customs officials. In general, these are the only restrictions on staff being able to go down to shore. In compliance with the ISPS Code, the embarkation and disembarkation of foreign crew members must be done through the port of São Francisco do Sul. Ships, however, are not allowed to put to sea until all their crew members are on board. Expenses and transportation for crew members left ashore will be borne by the ship.

The movement of crew members (embarkation or disembarkation) will be carried out under the full responsibility of the ship's captain, who will be liable for all the risks inherent in the voyage, embarkation and disembarkation in the open sea, as well as for all the expenses that may be incurred

which occur or may occur while the ship is detained for lack of personnel due to bad weather and for leaving a crew member ashore, untying and continuing the voyage unexpectedly due to lack of personnel, or which occur or cease to occur as a result of the release of crew members.

VISITORS

Visits are not allowed on board moored or anchored ships, except when duly authorized by the Captain, the Terminal Manager and the Maritime Police. Any unauthorized persons found on board or attempting to do so must be reported to the Maritime Police.

2.3 SAFETY DECLARATION (ISPS CODE)

The São Francisco do Sul Marine Terminal Terminal is ISPS Code certified, with Declaration of Compliance No. 093/2005, and has implemented corporate security measures applicable to ships and port facilities, in accordance with the requirements of the International Maritime Organization - IMO.

If necessary, these protection measures can be activated by the ship through the Terminal's Port Facility Security Officer (PFSO) or through the Terminal's Mooring Master.

The terminal operates normally at security level 01. For further details, the Terminal's Port Facility Security Officer (PFSO) can be contacted by telephone: (47) 99110-0855.

2.4 ALCOHOL AND OTHER DRUGS

According to ISGOTT, item 13.4, for staff health and safety reasons, the use of alcohol and drugs has a dangerous effect on performance, behavior and insecurity in the workplace. Therefore, the consumption of alcohol or the use of illicit drugs is not permitted at the **Transpetro**Terminal.

Transpetro to support the efforts of international authorities to combat illicit drug trafficking and the use of alcohol in non-permitted places, complies with the relevant preventive measures to avoid the use, possession, distribution of these criminal substances

2.5 FUMO

Smoking areas must be identified and the smoking requirements observed.

2.6 PORTABLE ELECTRONIC EQUIPMENT AND UNPROTECTED LIGHTS

All portable electrical equipment used must be intrinsically safe and explosion-proof.

Only intrinsically safe and explosion-proof electric lighting may be used on deck while the ship is at the pier.

2.7 ON-BOARD MAINTENANCE

SHIP REPAIRS

No repairs or maintenance work of any kind involving or likely to involve the risk of sparks or other means of ignition may be carried out while the ship is moored to the monobuoy without the written permission of the Mooring Master.

Minor ship repairs can be carried out by private workshops. They must be requested, via agents, 72 hours in advance, provided they do not render the ship inoperable when moored to the monobuoy.

ELECTRONIC EQUIPMENT REPAIRS

In São Francisco do Sul, there are resources available to carry out repairs to radars and radio communications equipment, although the request must be sent to the agent 72 hours in advance.

NEEDLE COMPENSATION AND RADIOGONIOMETER

It depends on the request, through the Agent, 72 hours in advance.

2.8 MATERIAL HANDLING

Awake by the terminal.

2.9 SAFETY DATA SHEET FOR CHEMICAL PRODUCTS (SDS)

The MSDS is compulsory for all chemical products classified as hazardous or whose intended or recommended uses give rise to risks to the health and safety of workers.

2.10 BENZENE AND H2S

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

2.11 STATIC ELECTRICITY

Precautions must be **taken** to prevent the risk of ignition by static electricity sparks during cargo measurements, sampling, hoses connections and loading/discharging operations.

3. General Information

3.1 LETTERS AND REFERENCE DOCUMENTS

The location of the monobuoy, its accessories and subsea pipelines are marked on the nautical charts:

Letters

Nautical Chart 1804 (British Admiralty 555)

Area	Nautical chart number
	Brazil (DHN)
Anchoring and approaching the port	1804

Other Publications

Type / Subject	Editor or Source
NPCP-SC - Standards and Procedures of the Port Authority of Santa Catarina	Directorate of Ports and Coasts - DPC - https://www.marinha.mil.br/cpsc/npcp
Support for navigation on the South Coast - South Coast Route	Directorate of Hydrography and Navigation - DHN
Admiralty Sailing Directions NP5 - South America - Vol.1	The United Kingdom Hydrographic Office - UKHO
Guide to Tanker Ports	Shipping Guides Limited - U.K. www.portinfo.co.uk

3.2 SHIP/TERMINAL COMMUNICATION POLICY

See items below.

3.3 DOCUMENTS AND EXCHANGES OF INFORMATION

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

Information	Prepared by:			Delivered to :			Comment
	Terminal	Ships	Both	Terminal	Ships	Both	
Before Arrival							
Estimated time of arrival (ETA) vessel information		x		x			According to ISGOTT
Essential information about the terminal	x				x		According to ISGOTT
Before Cargo or Bunker Transfer							
Cargo details / slop ballast on board		x		x			According to ISGOTT
Essential operational information	x				x		According to ISGOTT
Ship/shore safety checklist			x			x	According to ISGOTT
During Cargo or Bunker Transfer							
Repeat the ship/shore safety checklist			x			x	According to ISGOTT
After Cargo or Bunker Transfer, before departure							
Information needed to unberth the ship			x			x	Amount of fuel and water on board
After unmooring, at the port exit							
Information on port departure data		x			x		Timetable for disembarking and leaving the port

3.4 OPERATING HOURS

Approach and mooring maneuvers can be carried out during the day or night, i.e. the terminal can maneuver 24 hours a day, as long as certain meteoceanographic conditions are met, as follows:

- DAYTIME MOORING:
- Wind < 25 knots.
- Visibility > 0.5 nautical mile

- NIGHT TIME MOORING:
- Wind < 20 knots.
- Visibility > 1.0 nautical mile

Unmooring:

There are no restrictions on unmooring ships at night time.

3.5 LOCAL TIME

Brasilia Time in UTC-03:00

3.6 COMMUNICATION LANGUAGES

Communication from the ship/terminal must be in Portuguese or English.

3.7 USEFUL PHONE NUMBERS

See item 10. **Contacts**

3.8 ENVIRONMENTAL MONITORING PROCEDURES

This terminal does not have a weather monitoring station.

4. Port or anchorage description

4.1 GENERAL DESCRIPTION

The São Francisco do Sul Marine Terminal consists essentially of a 323-ton monobuoy manufactured by Bluewater (which constitutes the receiving system) and its administrative facilities, located on the island of São Francisco do Sul, in the district of Ubatuba, state of Santa

Catarina, near Enseada beach and southwest of the lighthouse on the island of Paz.

The São Francisco do Sul River flows into the sea through a two-armed delta that forms the island of São Francisco do Sul. The island is low and has marshy areas. The northern arm of the delta is called Barra Babitonga or Barra São Francisco and is the access to the port of São Francisco do Sul, on the island of the same name, about six miles upstream.

The southern bar, called Araquari, is about 0.5 mile wide and is practically obstructed by sandbanks on which you can see violent surf. This arm of the delta is only navigated by small boats with local knowledge and is entirely obstructed, about eight miles upstream, by an embankment crossed by a road and railroad linking the island to the mainland.

4.2 LOCATION

Coordinates

The monobuoy to which ships bound for the SAO FRANCISCO DO SUL MARINE TERMINAL must moor is in position:

- ✓ Latitude: 26° 13' 52" S
- ✓ Longitude: 048° 25' 03" W
- ✓ Light: ISO **A.** FL 0.3 sec. Ecl. 2.7 sec.

It has the following characteristics

MONOBUOY

Manufacturer Bluewater

Capacity Tankers up to 200,000 tons displacement

Hull diameter: 12 meters

Skirt diameter: 15 meters

Body height: 5 meters

Total height: 15,70 meters

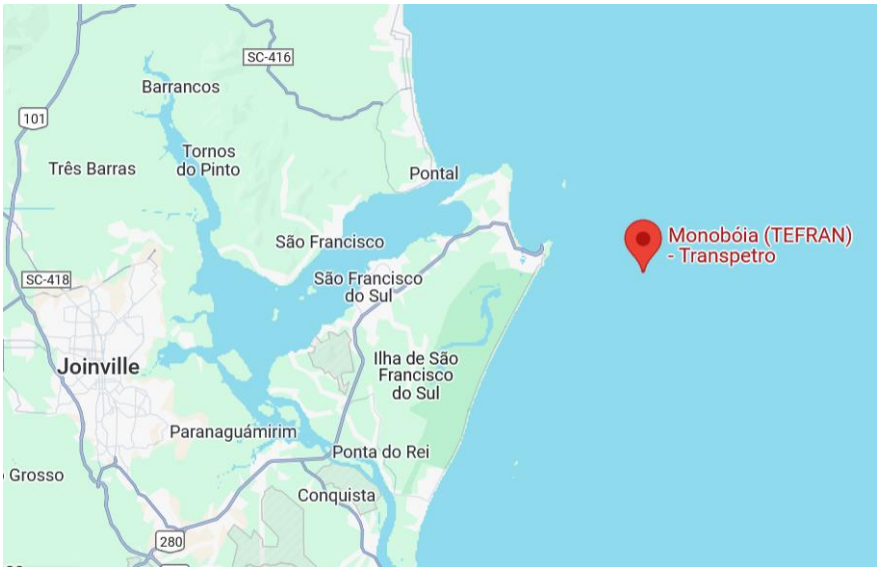
Weight 323 tons

ABS (American Bureau of Shipping) certification

Read by the Operation Control Center (OCC), the Monobuoy has the following indications:

- ✓ Wind speed and direction;
- ✓ Tension on the mooring line;

- ✓ Leak alarm on the internal Swivell on the Monobuoy;
- ✓ Monobuoy access door opening and closing sensors;
- ✓ Readings of the product handled: flow, temperature and pressure;
- ✓ Distance measurement system between ship and monobuoy;



4.3 APPROACHING THE TERMINAL

GENERAL DESCRIPTION

As you approach São Francisco do Sul and the berthing facilities at the São Francisco do Sul Marine Terminal, you will see the Ilha da Paz lighthouse and the monobuoy lighthouses, whose light is visible from about 5 miles away.

PERMITTED ANCHORAGES

Ships that need to anchor must position themselves at least 2 miles north of the monobuoy. There are also anchorages for different types of ships, demarcated on navigation charts and which can be used.

NAVIGATION AID

Navigation using radar is safe, as the points on the coast have clear contours and good reflection. Radar systems provide good coverage of the area and, when foggy, make it possible to guide speedboats with inoperative radar.

The Monobuoy has an AIS (Automatic Identification System) system containing 5 synthetic signals, one central which is the Monobuoy and four arranged in a radius of 500 meters defining the security area.

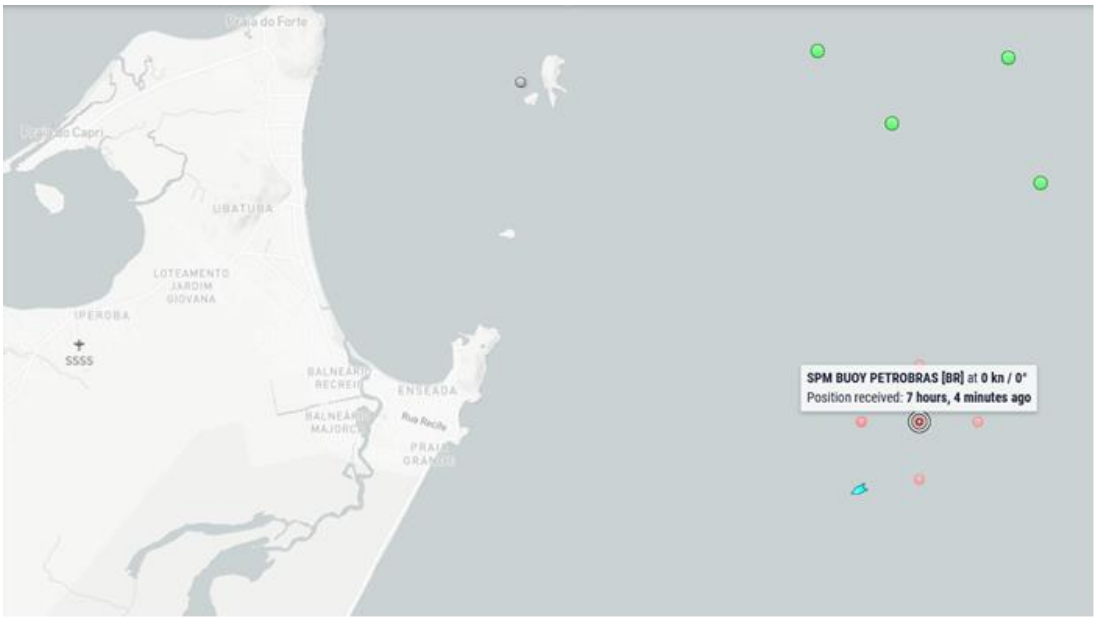


Figure 1: AIS Monobuoys

BATIMETRY

The survey was carried out from the vicinity of Praia da Enseada, in the city of São Francisco do Sul, to the west, to the 32-meter water depth at the eastern end of the area, as shown in figure 2 below.

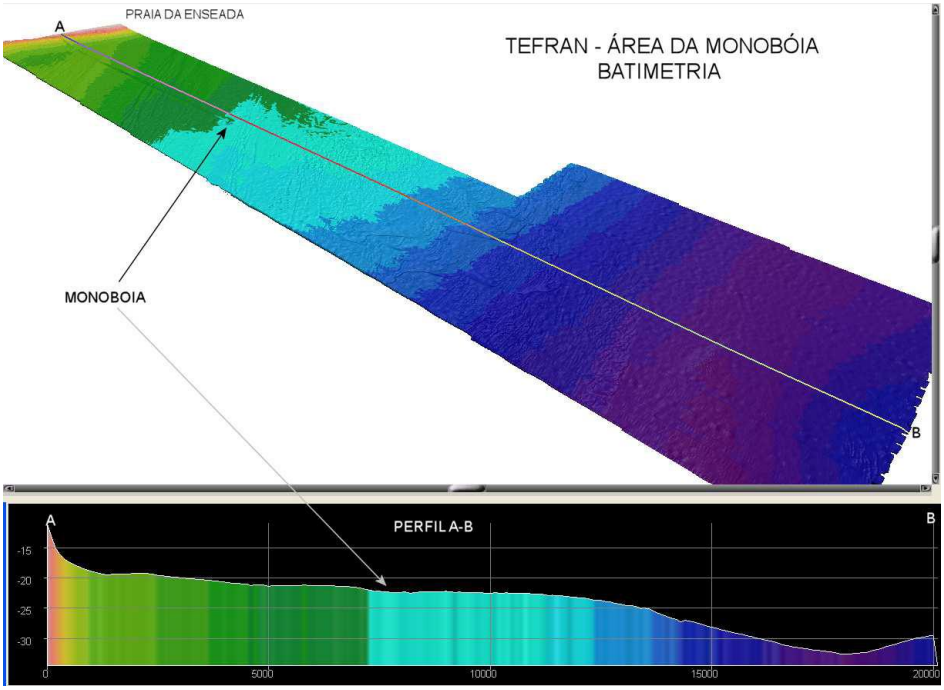


Figure 2 - Bathymetric profile along the surveyed area

In general, the relief of the area is extremely flat, with the greatest gradients located near Praia da Enseada and not exceeding 1.1 degrees. In the rest of the area, the average gradient does not exceed 0.1 degrees.

The area demarcated on the chart with a maritime boundary - between Pontal and Capri, the existence of an oil pipeline, where it is forbidden to anchor. The area marked by buoys and beacons.

Navigation and anchoring are prohibited in the 0.5 mile bands, parallel to each side of the subsea pipelines, which run from the monobuoy, in a westerly direction, to the coast, as well as in the area delimited by a circle with a radius equal to 1 mile, with the monobuoy as its center.

Navigation using radar is safe, as the points on the coast have clear contours and good reflection. Radar systems provide good coverage of the area and, when foggy, make it possible to guide speedboats with inoperative radar.

4.4 MANEUVERING AREAS

When approaching the monobuoy, the evolution basin extends along its entire periphery for an unlimited radius in the NE and SE quadrants and up to 2 miles in the NW and SW quadrants.

Depths vary between 20 and 25 meters in the monobuoy area.

The isobath lines run parallel to the orientation of the coast:

Isobatic line	Distance from the coast
20 meters	4 miles
50 meters	22 miles

The tide in the monobuoy area has the same peculiarities and irregularities as the tide in the port of São Francisco do Sul (see local Tide Table) and is on average about 40 minutes ahead of the tide in the port. Its amplitude is slightly lower than that of the tabulated tide for the port in question.

⇒ We recommend consulting local regulations (NPCP) and pilotage.

4.5 ENVIRONMENTAL FACTORS

The weather conditions on site can generally be considered good for ship operations.

In winter, stormy southerly winds are likely for more than 48 hours.

The other meteorological information for the area is described in the sub-items below:

PREVAILING WINDS

The records indicate that the strong winds in the region come from the southern quadrant, generated by cold fronts or a line of instability.

One of the strongest winds, recorded on 18th May, 1982 had an intensity of around 130 km/h, coming from the NW quadrant, in isolation, over a short period of time.

The maximum wind speed limit is 35 Kts to keep the ship moored to the monobuoy in safe operating conditions.

The Mooring Master may assess the need to unmoor the vessel even before this limit is reached.

WAVES & SWELL

Winds from the southern quadrant are generally caused by the arrival of cold fronts.

Waves with an amplitude greater than 3.5 meters are rarely recorded. Waves as high as 2.5 meters usually occur when winds come from the south, particularly in winter, from June to October.

The maximum limit for the operation of ships moored to the monobuoy with regard to wave/swell height is controlled/measured through the tension in the mooring line, the limits of which are referenced in the table in item **5.5 Main Risks**.

PRECIPITATION

The heaviest rainfall in the region occurs at dusk and sometimes extends into the night, and is most frequent in the spring and summer seasons. The average annual rainfall in the region is around 980 mm. There has historically been no incidence of hail or snow in the region.

LIGHTNING STORMS

Lightning storms are more frequent in the spring and summer seasons, in the afternoon and early evening, and the elements that contribute to their incidence are cold fronts and high temperatures during the day.

VISIBILITY

Visibility is generally good, but there is some fog in the early hours of the morning in autumn and winter. In the summer, there is sometimes a dry fog that reduces visibility.

TIDAL AND OTHER CURRENTS

Currents cannot be accurately correlated with the wind observed at the site, since they, like waves, are generated by offshore winds that do not always correspond to local winds.

However, it can be predicted from the observations that with an increase or decrease in the offshore generating wind, there will be a corresponding increase or decrease in the intensity of the current.

It can be concluded that, in the vicinity of the monobuoy, due to an absolute lack or decrease in wind intensity, the coastal current is greatly influenced by the tidal current of the Barra do Rio São Francisco.

SEA CURRENTS AND TIDE CURRENTS

The approximate normal average range of the tide at the Terminal is 1.20 meters (4 feet), with larger variations during the spring tide, up to 2.00 meters (6.6 feet). The maximum draft for mooring at TEFRAN (18 meters) was calculated on the basis of the worst tide conditions.

5. Terminal Description

The SAO FRANCISCO DO SUL MARINE TERMINAL is basically made up of receiving, storage and transfer systems.

The monobuoy is permanently connected to two parallel floating hoses lines of 20' diameter floating double carcass hoses, which have a total length of around 300 meters (951.2 feet).

At the end of each line that is connected to the ship, there is a special hose, 16' in diameter, called a Tanker Rail Hose, specifically for connection to the ship's manifold, with a butterfly valve and a blind flange at the end (standard 16" flange 150 PSI-ANSI B.16.5).

Also connected to the monobuoy is a double-braided cable made of polyamide (nailon) with floats 21" in circumference and 90 meters long, intended for mooring the tankers.

The upper part of the monobuoy is made up of a rotating structure which is used for mooring cables, interconnecting floating hoses and balancing the system.

The monobuoy is anchored by means of eight legs of 76mm diameter mooring lines, each about 300 meters long (2 barracks of 150m per R4 grade mooring line), arranged radially to its body, equidistant and with a 15t HHP model anchor at the end of each leg.

The monobuoy's eight moorings form an angle of 40° to the horizontal at the exit of the monobuoy and their catenaries reach the bottom about 50 meters from the periphery of the monobuoy.

At the bottom of the monobuoy, two lines of 20" diameter subsea double casing hoses with a configuration called the Chinese Lantern descend, connecting to the subsea manifold that joins the subsea pipelines.

From the subsea manifold located on the seabed, plumb with the center of the monobuoy, two 34'

diameter steel lines resting on the seabed come out and reach the Terminal's storage tanks, following an approximately east-west direction, with a total length of 11.5 km each.

The Terminal's receiving system provides two floating hoses strings with 16" connections and, under normal conditions, allows ship discharges at a flow rate of 10,000 m3/h (5,000 m3/h per line) at around 10 kgf/cm2 (150 psi) of pressure, measured at the ship's discharge manifold.

At the point where the underwater pipelines reach the coast, a beacon is placed, which displays a flashing light, ISO A. FL 0.3 sec. Ecl. 2.7 sec, indicating the direction of the pipelines.

The receiving system, described above, is plotted on the Brazilian Navy's DHN nautical chart 1804.

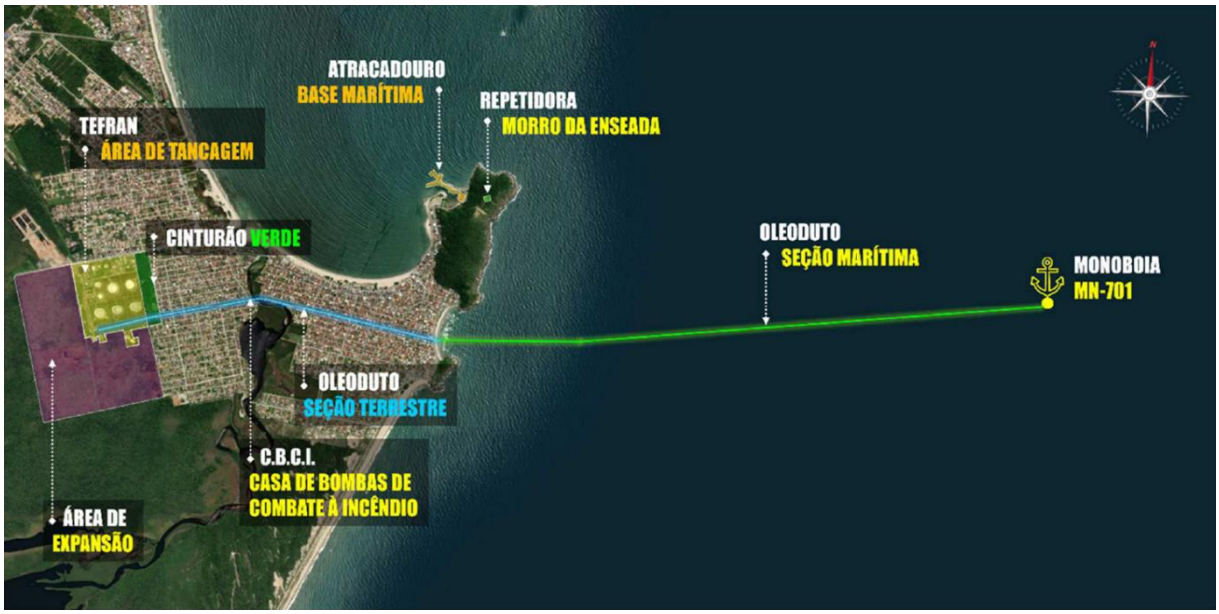


Figure 3: Aerial view of the facilities.

5.1 TERMINAL LOCATION

The SÃO FRANCISCO DO SUL MARINE TERMINAL has its main facilities and administration located in São Francisco do Sul, Santa Catarina.

Access to the SAO FRANCISCO DO SUL MARINE TERMINAL is by shore along the SC-21 highway, which runs from Joinville towards the coast, reaching the city of São Francisco do Sul at km 40 and finally the SÃO FRANCISCO DO SUL MARINE TERMINAL at km 60 (SC-301).

São Francisco do Sul - SC	20km
Joinvile - SC	60km
Itajaí - SC	140km
Blumenau - SC	170km
Florianópolis (Capital) - SC	200km
Curitiba (Capital) - PR	200km
Paranaguá - PR	150km

All the routes mentioned above are served by paved roads.

The Terminal is located at GPS position Lat. 32º 04'37" S and Long. 52º 05' 34" W

5.2 TERMINAL LAYOUT

5.3 CONDITIONS FOR ACCEPTANCE OF THE VESSEL

- Required Ship Conditions on Arrival

- ✓ In order for the ship's boarding, maneuvering and operations to be possible, safe and efficient, the ship must have minimum performance characteristics and conditions.

- ✓ The maximum ship's draft allowed at the Terminal is 18 meters, in order to ensure sufficient

clearance below the keel even under extreme sea conditions.

- ✓ Maximum ship displacement for this monobuoy is 200,000 tons.
- ✓ The ship's maneuvering conditions must be satisfactory, especially with regard to the propulsion engine and rudder.
- ✓ The propulsion engine must be in suitable condition to remain ready for operation for the duration of the ship's stay at the monobuoy and to be put into operation as soon as determined.
- ✓ The loadstick or crane next to the ship's port discharge manifold must be in perfect working order and have a minimum lifting capacity of 10 tons at one meter from the side.
- ✓ The windlasses (drums, brakes, jaws, etc.) must be in a condition that allows the ship's turnbuckles to be rounded.
- ✓ The bow arrangement of vessels must comply with the recommendations of the OCIMF "Mooring Equipment Guidelines" in its latest edition. Special attention must be given to ensuring that the number of pedestal rollers does not exceed 2 units and that the angle between them is as small as possible, not exceeding 90º.
- ✓ The minimum distance between the clapper wheels (or smallest horn diameter) should be 0.28 meters, to allow for the passage of the shackle that slings the mooring line from the monobuoy to the ship's turnbuckles.
- ✓ The maximum distance allowed between the bow and the ship's manifold should be 140 meters for both monobuoys.
- ✓ The flanges of the ship's outlets must be standard 150 PSI ANSI-B.16.5, diameter 16" (400 mm).
- ✓ The two flanges of the discharge manifold to be used must have a minimum clearance of 2 meters, a maximum height of 2 meters above the deck and a distance of 4.5 meters from the edge, in order to allow proper handling and bending of the hoses to be connected.
- ✓ The rail or balcony in front of the manifold must be 900 mm below the height of the manifold flanges and its upper surface must be made up of a rounded piece with a minimum radius of 100 mm.
- ✓ Failure to comply with any of the above conditions will mean the ship is unsuitable for the Terminal and may result in it being rejected for monobuoy operation.
- ✓ The ship must provide support facilities for the group of people from the Terminal who will remain on board during their stay on the monobuoy, such as overnight accommodation and meals. Normally, the group is made up of at least seven people, including one maneuver captain and six maneuver assistants.

- ✓ The ship must have a mooring system at the bow consisting of a 3-inch (76 mm) chain stopper, through which a chain whip will pass, connected to the end of the cable which will serve as the ship's mooring point to the monobuoy

5.4 MANAGEMENT AND CONTROL

5.5 MAIN RISKS

See item 4.5 Environmental Factors

Unmooring as bad weather approaches:

- ✓ When the wind force reaches 25 knots, the ship and the ship's crew must enter a state of readiness.
- ✓ When the wind force reaches 30 knots or the pull on the mooring line reaches 50 tons, unloading must be stopped and disconnection prepared.
- ✓ When the wind force reaches 35 knots or the mooring line pull reaches 60 tons, the ship must be disconnected and unmoord immediately.
- ✓ The Mooring Master may interrupt operations, even with parameters lower than those described above, if, in his analysis, he finds that the continuation of operations would put the installations, the ship, the crew, support teams and/or the environment at risk.

See table below:

MAXIMUM ENVIRONMENTAL PARAMETERS FOR SHIPS		
ACTIVITY	DESCRIPTION	WORST ACCEPTABLE CONDITION
NIGHT APPROACH AND MOORING	WAVE HEIGHT/SWELL (METER)	1.5
	WIND	20
	CURRENT (NODE)	N/A
	VISIBILITY (NAUTICAL MILE)	>1.0
DAYTIME APPROACH AND MOORING	WAVE HEIGHT/SWELL (METER)	<2,5
	WIND	25
	CURRENT (NODE)	N/A
	VISIBILITY (NAUTICAL MILE)	>0.5
INTERRUPTION OF PUMPING	WAVE HEIGHT/SWELL (METER)	3.0
	WIND	≥30
	CURRENT (NODE)	N/A
	CABLE PULL (TON)	≥50
DISCONNECTION/ DISMISSAL	WAVE HEIGHT/SWELL (METER)	>3.0
	WIND	≥35
	CABLE PULL (TON)	≥60

6. Description of Monobuoy

6.1 MOORING AT THE MONOBUOY

The Mooring Master on board now advises the ship's captain. The ship then begins to approach the monobuoy.

Once the mooring/connection system has been inspected, the support vessel will handle the floating hoses strings away from the ship's maneuvering area.

About 200 meters away from the monobuoy, with the ship already stopped (dead in the water), a mooring support vessel approaches the bow of the tanker to receive a messenger line and take it to the polypropylene shackle located at the end of the mooring hawser.

The bow winch or windlass, manned by the ship's crew, begins to heave in the messenger line.

NAVIGATION AND MOORING AIDS

The Mooring Master assists the ship's captain in correct positioning during mooring, so that the floating hose lines can be connected.

DEPTH CONTROL

At TEFRAN, the draft limit for mooring, loading and unloading and unmooring the monobuoy is 18 meters at any time of year.

MAXIMUM DIMENSIONS

The maximum displacement of ships to dock at TEFRAN is up to 200,000 tons.

MONOBOY		
Maximum draught	18 meters	Any time of year
Maximum displacement	200.000 Tons	

6.2 MOORING ARRANGEMENT

Vessels are moored to the single buoy mooring using a single 100% polyamide (nylon) double braided mooring hawser with a circumference of 21 inches and a length of 90 meters. The mooring hawser is coated with polyurethane, fitted with lace-on floats (installed by the Terminal), and extended using a 3-inch (76 mm) section of cable with 54 links (17 meters). Other accessories are available at the SPM for the maneuvering and mooring of vessels.

See: Appendix D – Mooring with chain stopper

7. Communication before arrival

SHIP PROCEDURES BEFORE ARRIVAL

The demand for oil tankers is carried out in such a way as to allow their agents and, consequently, the Terminal, to be aware of their arrival as precisely as possible.

RADIO PROCEDURES BEFORE ARRIVAL

Ships bound for the SAO FRANCISCO DO SUL MARINE TERMINAL must send the ETA 72 hours in advance directly to their agents.

VHF USE

Ships approaching São Francisco do Sul should try to contact the terminal via channel 14, informing its ETA at least two hours in advance.

During the maneuvers and stays of the tankers at the Terminal, all those involved in the operations stay in permanent contact on VHF radio channel 14.

CLEARANCE OF THE SHIP BY THE PORT AUTHORITIES

Ships bound for the SAO FRANCISCO DO SUL MARINE TERMINAL can be visited on the monobuoy by Port Health, Customs and the Maritime Police. The ship's agent must make the necessary arrangements.

Any and all documents relating to the clearance of the ship at the last port must be submitted to the port authorities.

NATIONAL HOLIDAYS

All ships in Brazilian ports must be flagged in the arch on the national holidays of September 7 and November 15.

DANGEROUS GOODS FLAG

Tankers must keep the BRAVO flag flying during the day and a red light at night throughout their stay.

BRAZILIAN FLAG IN PORT

The Brazilian flag must remain flying on the main mast of national ships and foreign ships for as long as the ship remains in port.

Ships are exempt from flying the QUEBEC flag upon on arrival. (free practice request).

STAND-BY ENGINE

While vessels remain moored to the monobuoy, they must keep their engine in a condition for immediate use, to be able to leave the buoy as soon as they are notified to do so. They must also keep the ship's bow mooring equipment and crane in working order.

Any necessary repairs should not interfere with this determination.

Failure to comply with this requirement will result in the vessel being towed to anchorage, at its own expense, and PETROBRAS/TRANSPETRO will not accept any liability whatsoever for any delays that may result.

SMALL BOATS ON THE SIDE

The strict prohibition on small vessels being on the side or in the vicinity of moored and operational vessels must be carefully observed. Only the Terminal's own service vessels or those authorized by the port authorities or the Terminal may be in the vicinity or alongside, provided they meet all safety and security requirements.

INTERRUPTION OF OPERATION

The operation of the ship must be stopped in the event of a fire or a fire starting on board, in the shore facilities, including the monobuoy, on another ship in the vicinity or passing at a distance considered dangerous, or in any situation that could pose a danger to either the ship or the monobuoy.

CARGO BALANCING

In addition to standby engine, the ship must be kept in a cargo balance condition that allows it to move away from the monobuoy as soon as it receives a warning to do so.

7.1 INFORMATION FROM THE TERMINAL TO THE SHIP

7.1.1 MOORING

PRIORITY FOR MOORING SHIPS

- ✓ The time of arrival is considered to be the moment when the ship reaches the anchorage area (2 nautical miles from the monobuoy) or where the Mooring Master boards, whichever comes first.

- ✓ In the event of mooring being delayed by weather or sea conditions unfavorable, and if there is more than one ship in the area to berth, the chronological order of arrival will be followed, or another order, at the discretion of the Terminal's schedule and/or needs.

- ✓ Ships may sometimes be diviated to other terminals, fully or partially loaded. These orders are issued by charterers, agents or the Terminal itself.

PROCEDURES WHEN THE SHIP ARRIVES

- ✓ In the event of a communication failure, the ship must proceed to the planned anchorage point and wait for information from the Terminal.
- ✓ If, when the ship arrives, the weather or atmospheric conditions do not allow it to be boarded by the Terminal's vessels or even make it impracticable to operate the monobuoy, it will proceed to the planned anchorage point.
- ✓ Under normal conditions, the Terminal's vessels may board the ship when it arrives, the boarding point being defined by the Mooring Master on duty of the SÃO FRANCISCO DO SUL MARINE TERMINAL.

PROCEDURES WITH SHIPS IN OPERATION

- ✓ The Mooring Master, when on board, will advise on the method to be followed for mooring the ship.
- ✓ The tanker is asked to prepare the crane and ladder on the port side.
- ✓ When the time was right, the speedboats put to sea, one heading towards the determined point and the other towards the monobuoy, for a diving inspection of the floating equipment, submarine and cables.
- ✓ The first boat will board the ship for the Mooring Master, liaison personnel, visitors and miscellaneous supplies. This task can be carried out while the ship is already moving towards the monobuoy, depending on the guidance of the Mooring Master.
- ✓ Excessive trimming will not be allowed during unloading, to avoid damaging the mooring lines, hoses and rotating arms of the monobuoy.
- ✓ The main engine and rudder must be kept in a maneuverable condition at all times, as well as a navigating officer on the gangway.

CARGO TRANSFER

The Terminal's transfer system includes the equipment needed to transfer the oil stored in the storage system to the Presidente Getúlio Vargas Refinery (REPAR) in Araucária (PR).

The transfer system through the pipeline to REPAR allows an **average flow of 2,000 m³/h** , using three main pumps.

WATER DEPTH

Depths vary between 20 and 25 meters in the monobuoy area.

See item: **4.4 MANEUVERING AREAS**

SUPPORT SERVICES FOR THE RECEIVING SYSTEM

To support mooring and connection to the monobuoy, and to support ship unloading operations, the Terminal has the Merlusa and Pampo speedboats, built and adapted to facilitate the performance of the services for which they are intended. They are equipped with VHF radio, radar and GPS.

These boats have their mooring and land support located at Ponta da Enseada, about 4 miles from the monobuoy.

Next to this mooring, there is a Maritime Activity of the TERMINAL Management

SÃO FRANCISCO DO SUL MARINE, equipped with a VHF radio, tuned to channel 14 to support maritime operations.

STORAGE SYSTEM

The tanks, as well as the lines and pipelines, have no heating system.

WASTE AND SLOP DISPOSAL PROCEDURES

There is no facility for receiving waste (slop) from the ship.

7.2 INFORMATION FROM THE SHIP TO THE TERMINAL

Terminal Form (ISGOTT) See Appendix E

8. Operational Information

8.1 SHIP / TERMINAL ACCESS

See item: **2.2 TERMINAL ACCESS/ VISITORS**

8.2 INITIAL INSPECTION (KEY MEETING)

See item 8.3.

8.3 SHIP/SHORE SAFETY CHECKLIST (SSSCL)

The Vessel/Terminal Security Checklist (Vessel/Terminal

ISGOTT Safety) is checked and completed by the terminal representative (Safety Inspector) during the initial release of the ship, when all safety recommendations are addressed.

8.4 BALLAST AND DEBALLAST POLICY

BALLASTING

Ballasting must be carried out during the unloading operation. Tankers that fail to do so, for whatever reason, are subject to receiving a letter of protest and being held responsible for the time that has elapsed since the hoses were disconnected.

WATER POLLUTION

Brazilian legislation is very strict when it comes to water pollution by oil tankers. Discharging crude oil or petroleum products into the sea, alone or mixed with ballast water, is punishable by high fines.

PETROBRAS/TRANSPETRO is responsible for notifying the Port Authority of any leaks, spills, etc. occurring on its premises or of which it becomes aware.

8.5 HOSE CONNECTION/DISCONNECTION PROCEDURES

HOSE CONNECTION

Once the tanker is moored and aligned to the result of the forces of the current, wind and sea, the boat supporting the floating hoses brings them up vertically from the port side crane (always and only from the port side), until it is hoisted and connected to the inside line (the SOUTH line) initially, as it is the one next to the side. Then repeat the same task with the outside line (NORTH line). There are two floating hose strings connected to the manifold, with a "Camelock" quick release device for disconnection in an emergency.

The electrical isolation between ship and monobuoy is carried out by inserting an electrically discontinuous hose in the second position of the floating hose string in the ship-monobuoy direction, the rest of the line being made up of electrically continuous hoses in order to adequately dissipate possible accumulated static charges.

ACCESSORIES

The accessories for connecting the hoses (straps, gaskets, nuts, bolts, keys, cables, etc.) are supplied by the Terminal.

DISCONNECTING HOSES

Once unloading is complete, disconnection begins, initially via the external line (NORTH line), in which the ship's load stick/crane takes part in the task of dropping the hoses overboard.

PROCEDURE FOR QUICK HOSE DISCONNECTION

Perform the quick disconnection of the hose lines from the ship¿s manifold when the weather conditions reach the thresholds mentioned below. These conditions are monitored in real time on the Terminal Supervisory System screens, in order to anticipate the arrival of adverse weather and to ensure the integrity of the systems and the safety of personnel.

Note: The Mooring Master must coordinate with the Captain/Chief Officer to ensure the IMMEDIATE presence of the crane operator and the ship's crew, along with the shore mooring team on standby at the first alert.

1) **ALERT ALARM** - When the wind speed is greater than or equal to 25 KNOTS or the mooring hawser tension reaches greater than or equal to 40 TONS, as defined in the decision-making tables, the Supervisor/Operator must immediately notify the Mooring Master to place the entire shore mooring team on standby, including the crane operator, pumpman, and ship’s crew, regardless of the time or their current activities.

2) **OPERATION STOP ALARM** - When the wind speed is greater than or equal to 30 KNOTS, or the mooring hawser tension reaches greater than or equal to 50 TONS, as defined in the decision-making tables, the Supervisor/Operator must immediately notify the Mooring Master so that the vessel IMMEDIATELY STOPS the cargo transfer operation and positions all teams on deck, awaiting instructions for a possible disconnection.

3) **DISCONNECTION AND UNMOORING ALARM** - When the wind speed is greater than or equal to 35 KNOTS, or the mooring line tension reaches greater than or equal to 60 TONS, as defined in the decision-making tables, the Supervisor/Operator must immediately notify the Mooring Master to IMMEDIATELY DISCONNECT AND UNMOOR the vessel.

8.6 CARGO TRANSFER PROCEDURES.

DISCHARGE

At the start and during unloading, the following rules must be observed on board:

a) The Mooring Master will determine the start of pumping
b) The maximum permitted pumping pressure and flow rate is 10kgf/cm2 and 5,000m3/h p/line.

c) As a general rule, when the discharge is complete, the tanker should be ballasted to 40% of its tpb.

d) A surveillance service must be maintained on the bonnet (bow) and in the area near the hose connection flanges

e) For the duration of the operation, on-board accommodation and rations must be provided for the terminal staff (one officer and six maneuvering assistants)

f) Whenever weather conditions unfavorable to the operation of the NT occur, as stipulated in this manual, unloading must be interrupted. Specific unloading instructions are provided when the ship arrives

g) Every hour it will be checked, compared and reported via VHF channel 14 to ship/terminal flow to avoid any kind of abnormality.

8.7 LOAD MEASUREMENT, SAMPLING AND DOCUMENTATION

The Mooring Master will be on board the ship overseeing the measurement and sampling and carrying out the exchange of documentation.

At the end of unloading, the Mooring Master will inspect the tanker tanks, noting the results on the appropriate forms.

Averagetime for the various operations (in minutes):	
Approaching the Monobuoy	90
Tool Box	10
Mooring	20
Key Meeting	70
Handling the hoses	20
Hoses connection	50
Documents Signed	70
Hose disconnection	40
Unmooring	10
Tool Box Off	10
Disembarkation of personnel	15

THIRD PARTY INSPECTION OF PETROLEUM PRODUCTS

Third party inspections of petroleum products are only carried out on imported products and inspectors are appointed by the Federal Custums. The Surveyor goes on board together with the Mooring Master and is boarded through the Transpetro Terminal.

8.8 ENVIRONMENTAL LIMITS

See item 4.5.

8.9 TANK CLEANING AND ENTRY POLICY

Tank cleaning operations are not allowed when the tanker is moored or anchored at São Francisco do Sul.

8.10 INERT GAS

The inertization process is important for the safety of oil and chemical tankers

Fill the empty space in the tank with inert gas

Keep the oxygen concentration below 8%

8.11 SUPPLY POLICY

FUEL

The SAO FRANCISCO DO SUL MARINE TERMINAL does not have the means to supply ships with fuel.

LUBRICANTS

The SAO FRANCISCO DO SUL MARINE TERMINAL does not have the means to supply ships with lubricants.

8.12 POLLUTION PREVENTION

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

8.13 POTABLE WATER

The SAO FRANCISCO DO SUL MARINE TERMINAL has no means of supplying water to ships moored at the monobuoy or anchored offshore.

8.14 UNMOORING THE MONOBUOY

When unmooring, the mooring line is checked for any tension and, if necessary, the ship's engine is used as a support. The chain stopper is then released and the 76 mm chain is dropped at the end of the line, leaving the ship free to move away from the monobuoy.

TOOL BOX PICKING UP

Once the ship is clear of the monobuoy, a maneuver is carried out to provide a lee side on the port side for lowering the tool box with connecting and mooring material.

The support personnel and the Mooring Master disembark, and the ship is clear by the Terminal to start the commenced of sea passage.

8.15 COMPLIANCE WITH THE ISPS CODE

The São Francisco do Sul Marine Terminal is certified under the ISPS Code, has a valid Declaration of Compliance and has implemented port security measures applicable to ships and port facilities, in accordance with the requirements of the International Maritime Organization - IMO.

If necessary, these protection measures can be activated by the ship through the Terminal's Port Facility Security Officer (PFSO) or through the Terminal's Mooring Master.

The terminal operates normally at security level 01. For further details, the Terminal's Port Facility Security Officer (PFSO) can be contacted by telephone: (47) 99911-4256.

8.16 OTHER RELEVANT INFORMATION

GASFREEING

Gas freeing of a ship moored to a monobuoy is not permitted.

SMOKESTACK CLEANING

No branching or cleaning of boiler pipes of any kind may be carried out while the ship is moored to the monobuoy, and special precautions must be taken to ensure that no sparks escape from the chimney.

EXCESS SMOKE

- ✓ It is forbidden to discharge thick smoke through the chimney of ships moored to the monobuoy. Failure to comply with these regulations will result in one or more of the following sanctions:
- ✓ Immediate interruption of the operation, whatever it may be.
- ✓ Fine by the competent authorities.
- ✓ Compulsory departure of the ship from the buoy
- ✓ Reporting the infringement to the shipowners.
- ✓ Fines, time losses and all other related expenses will be charged to the ship.

SUSPENSION OF CARGO OPERATION

Operations may be temporarily suspended during storms, thunderstorms and/or very fresh to strong winds.

PETROBRAS/TRANSPETRO is authorized to suspend the operation in the event of non-compliance with any of the aforementioned rules, laws or regulations, or of any dangerous situation

that the Mooring Master or Operations Supervisors believe to exist.

Tankers are expected to abide by and comply with all universally accepted safety regulations and standards adopted in the maritime transportation of oil.

The Ship's Captain has the right to stop the operation if he believes that it is unsafe, communicating this fact to the terminal.

9. Port or anchorage organization

9.1 PORT CONTROL OR VTS

There is no VTS service in the port of São Francisco do Sul.

9.2 MARITIME AUTHORITY

The maritime authority is the Port Authority.

9.3 PILOTAGE

The Terminal provides the services of a duly qualified Mooring Master and Loading Master. This professional will assist the ship's captain in maneuvering the approach, mooring and unmooring of ships to the monobuoy, as well as coordinating connection/disconnection operations and the transfer of cargo.

The use of the Mooring Master is mandatory for all ships wishing to operate at the Terminal, both for loading and unloading operations.

The Mooring Master will guide the ship's captain from the moment he boards the ship at the anchorage.
The Mooring Master will remain on board to continue assisting the ship in its operational activities, and will be responsible for supervising the operation of the Terminal's boats.

It should be made clear that the ship's captain will be solely responsible for the maneuvers, and the Mooring Master will be considered an employee of the shipowner and will not be held responsible or jointly responsible for anything that occurs or fails to occur as a result of such operations.

Acceptance of the Mooring Master's services will *ipso facto* imply acceptance of the aforementioned conditions.

Similarly, Transpetro assumes no liability whatsoever for damages, accidents, losses or whatever may occur or cease to occur by virtue of the acceptance by the Master of the vessel of the

guidance, opinion, actions or intentions of the Mooring Master, with which the Master of the vessel may agree or not, using his own judgment, which will necessarily prevail.

If the ship's captain prefers not to accept the above conditions, he must communicate with his agent and instruct him to proceed in accordance with what he has decided.

Any delay that occurs or may occur as a result of such actions will be at the ship's expense.

In addition, the ship's captain is obliged to notify the Mooring Master of any abnormalities, difficulties or peculiarities of the ship, such as defects in navigation and mooring equipment, rudder, machine or boiler deficiencies or lack of necessary equipment that could lead to danger for the operation, mooring and launching of the ship.

The Mooring Master must be notified immediately of any acts or events that could jeopardize the safety of the ship or system, as well as any operational occurrences that could introduce changes to existing conditions.

The ship must be moored in such a way as to meet the safety criteria for the ship and the monobuoy.

The Mooring Master will remain on board during the ship's stay moored to the monobuoy and will notify the Terminal Manager, via the Shift Supervisor, of any operational faults and, in this case, the ship may be ordered to leave the monobuoy and only be received again once the necessary corrective measures have been taken.

The Mooring Master must notify the ship's captain in writing of any failure to comply with the established operational rules after the ship's arrival.

9.4 TUGS AND OTHER MARITIME SERVICES

The São Francisco do Sul Marine Terminal has 01 tugboat, with a static traction of 34.07 tons, to assist in Pull Back maneuvers.

Boat for mooring and transporting personnel

The tasks of mooring, unmooring, connecting and disconnecting hoses is assisted by the terminal's boats, coordinated by the Mooring Master. Two boats are usually at his disposal. In addition to this operational assistance, the speedboats transport the Terminal's staff, agents, port authorities and the Brazilian crew of the tankers flying the Brazilian flag. Foreign crew members will not be able to embark / disembark through the terminal's facilities, in accordance with the terminal's security plan and the orders of the Brazilian Federal Police.

Characteristics of boats for mooring and transporting personnel

The vessels providing mooring support have the following characteristics:

- Maritime VHF radio
- GPS - Global positioning system
- The draft of the vessel must not exceed 2.00m

- 700 hp propulsion and a speed of 10 knots
- Capacity to carry at least 16 passengers
- Minimum length 16m
- Certified to work in the open sea

Night boats

Except in cases of force majeure, speedboats do not transport ship's agents or crew at night.

Boats for transporting materials

The transportation of food or materials to the tankers cannot be done by the terminal's vessels, which do not have the characteristics for this type of activity. Carrying out this activity depends on a prior assessment and that it does not affect normal operations in the service of tankers and does not present difficulties or risks in its handling. Foreign-flagged vessels should contact their agents to hire boat service to carry out this work.

Provisions and supplies

The supply of provisions and supplies can be arranged through the agent or directly by the ship's suppliers. Most of the articles come from Joinville; although some items can be obtained in São Francisco do Sul. The terminal will not provide boats for sending rations or supplies on board the ships.

9.5 OTHER RELEVANT INFORMATION

Weights and Measures Systems

The system of weights and measures officially adopted throughout the country is the decimal metric system.

Regulation of Brazilian Ports

As a general rule, any ship can enter all Brazilian ports at any time.

Normally, merchant ships receive visits from Health and Customs between 7.30am and 7pm, but they can receive such visits outside these hours upon prior request and payment of an extraordinary fee.

Ships are prohibited from throwing garbage of any kind into the water in ports, rivers and internal anchorages.

Ship-related responsibilities

The captain is constantly responsible, including through the ship's personnel, for the safety of the ship and must therefore take all precautionary measures to this end.

Safety Regulations for the Operation of Oil Tankers

The SAO FRANCISCO DO SUL MARINE TERMINAL adopts the recommendations of the Safety Guide for Oil Tankers and Terminals (ISGOTT). Therefore, before the start of operations and several times during the unloading operations, the Maneuver Captain, accompanied by an Officer designated by the ship's command, will check that the recommendations and good safety practices of the oil and gas industry are being observed, not only by the ship, but also by the terminal.

10. Contacts

TERMINAL

SÃO FRANCISCO DO SUL MARINE TERMINAL TERMINAL

Rua Felipe Musse, 803 - Ubatuba, São Francisco do Sul

Santa Catarina - BRAZIL

ZIP CODE: 89242-000

Tel: (47) 3233-5414 / 3233-5288

sfsul@transpetro.com.br

Terminal working hours

Opening hours are from 7:30 am to 4:30 pm, Monday to Friday. During periods outside the above times and days, the Operational Control Center (OCC) remains in operation,

with VHF permanently listening.

Tankers are moored and unmoored at any time, subject to meteoceanographic conditions.

11. DEFINITIONS

SPRING TIDE - *A* tide just after a new or full moon, when there is the greatest difference between high and low water.
LOW TIDE - A condition in which the tide reaches its lowest point at a certain time of year.

IMO - International Maritime Organization

ISPS Code - International Ship and Port Facility Security Code

BREAKWAY COUPLING - Automatic hose uncoupling device.

VTS (Vessel Traffic Service) - Vessel Traffic Service

ISGOTT - International Safety Guide for Oil Tankers and Terminals

SOLAS - Safety of Life at Sea - International Convention for the Safety of Life at Sea

BP (Bollard Pull) - Static longitudinal traction

GIAONT - Operational Inspection and Monitoring Group ship / terminal

DWT - Deadweight tonnage

COW (Crude Oil Washing) - cleaning the ship's cargo tanks with the product it is carrying

LCP - Local Contingency Plan

ETA (Estimated Time of Arrival) - Estimated time of arrival

SPM (Single Point Mooring) - monobooth or single point mooring.

VHF (Very High Frequency) - Radio frequency used in maritime operations.

BEAUFORT SCALE - Ascale that measures wind intensity from the sea state.

BUNKER - Marine fuel intended for ships.

SLOP - Waste tank.

CRE - Emergency Response Center

CALM (Catenary Anchor Leg Mooring) - system for anchoring and installing the monobuoy/underwater hose assembly.

GANGWAY - Straight metal structure with side balusters and handrails. The steps are self-leveling according to the slope and have a non-slip tread. It is placed parallel to the side of the ship, from a retractable platform fixed to the deck.

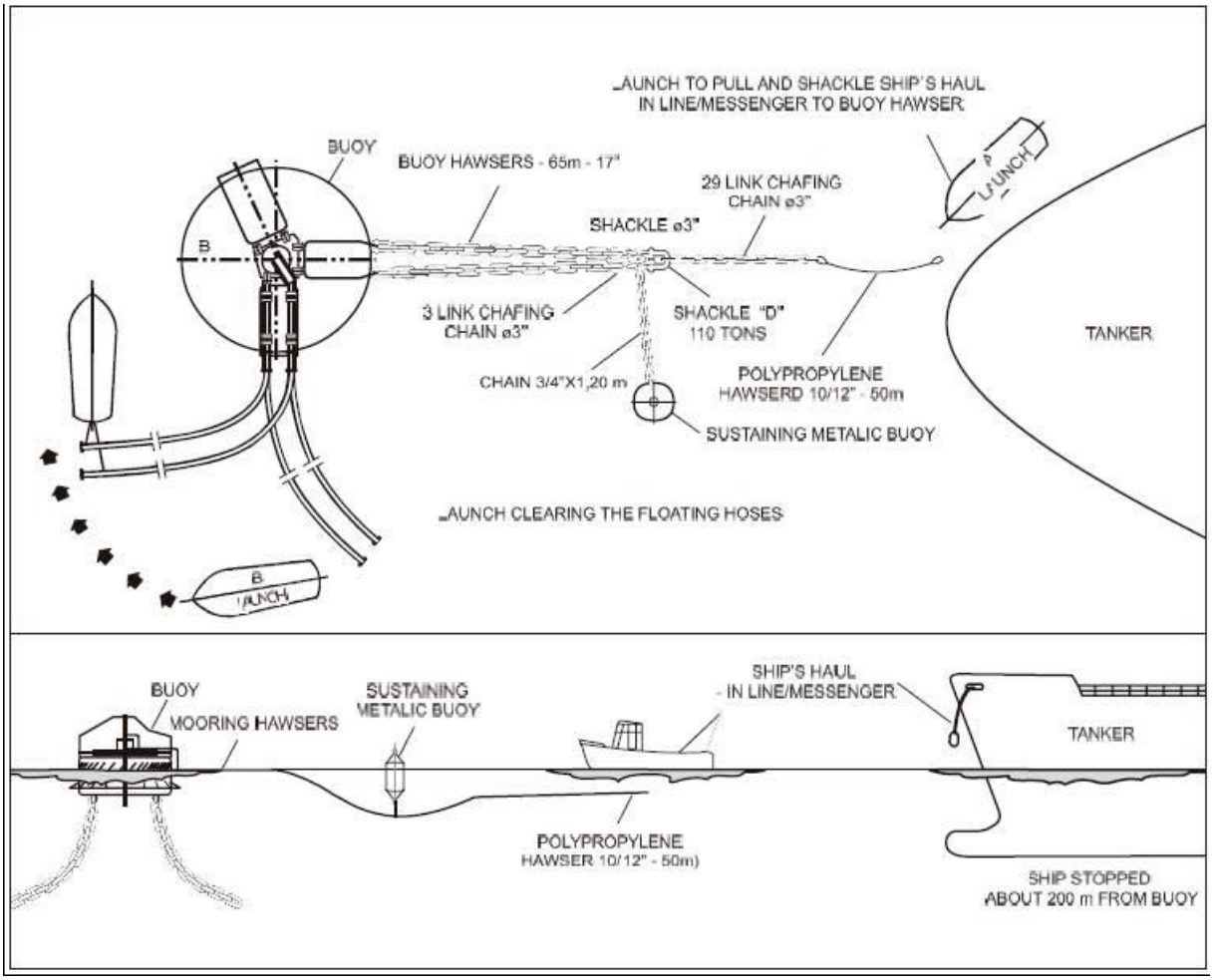
PILOT LADDER - A flexible ladder made up of cables with wooden and/or rubber rungs in accordance with the SOLAS convention.

MOORING MASTER - A professional with a bachelor's degree in nautical sciences, trained as a Deck Officer, who assists the Tanker Captain during approach maneuvers, mooring/unmooring and, at the terminal's discretion, the transfer of oil and oil products.

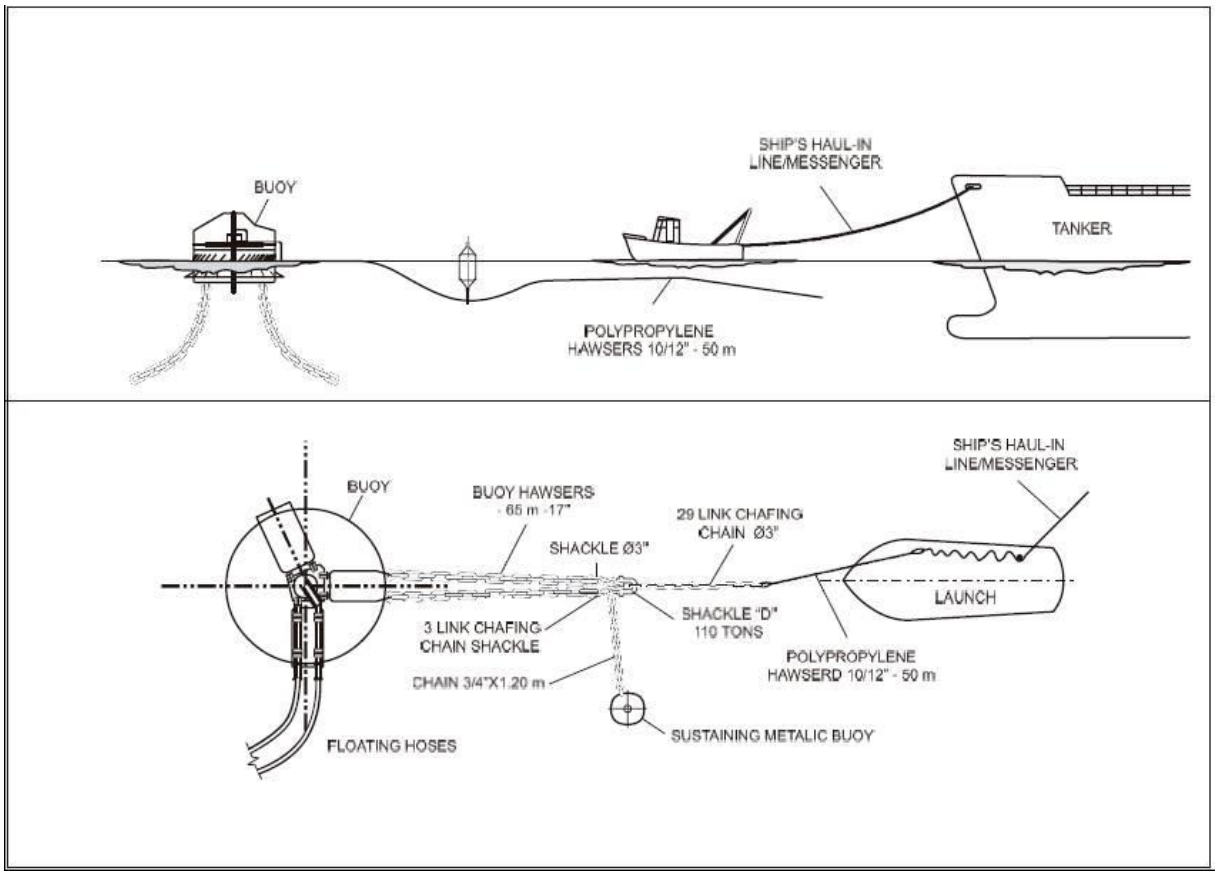
SSSCL – Ship/Shore Safety Checklist (ISGOTT).

APPENDIXES

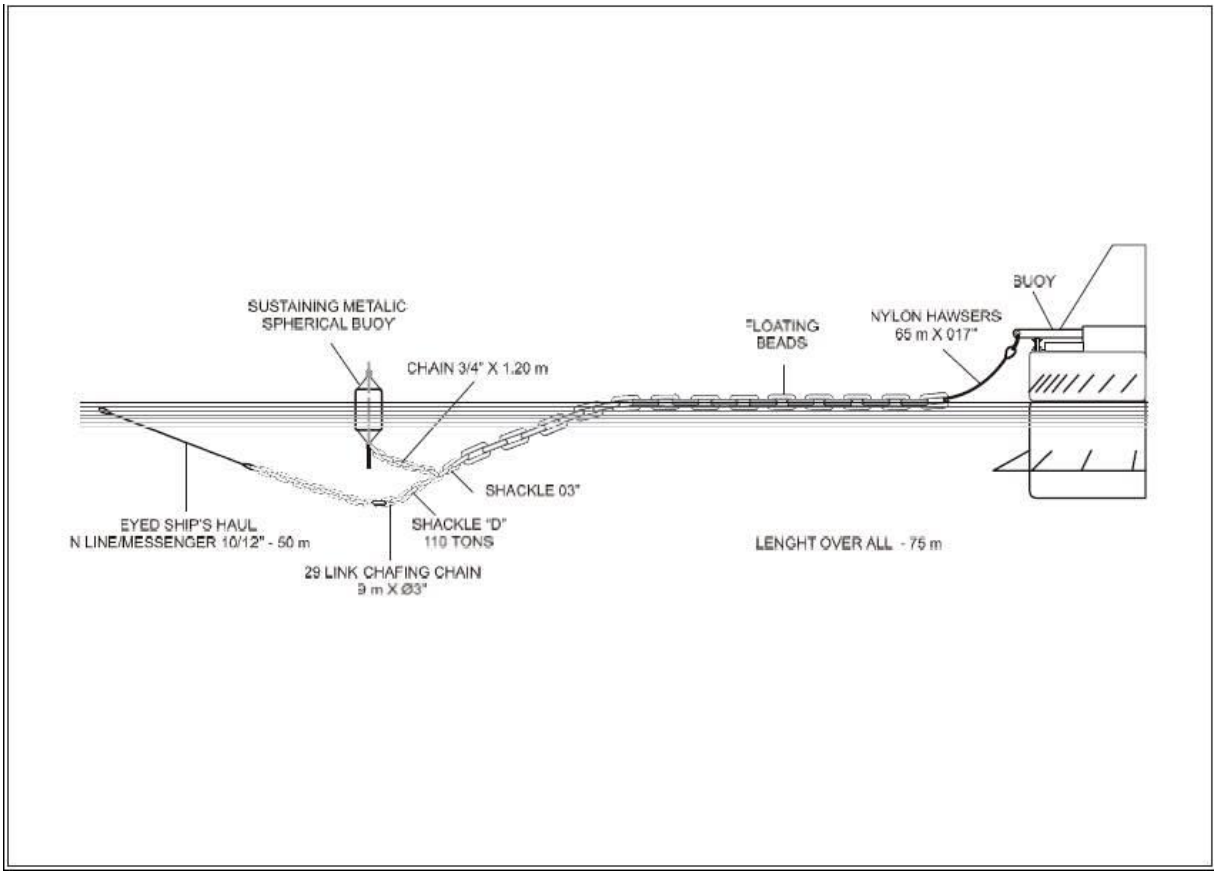
A- MONOBUOY APPROACH



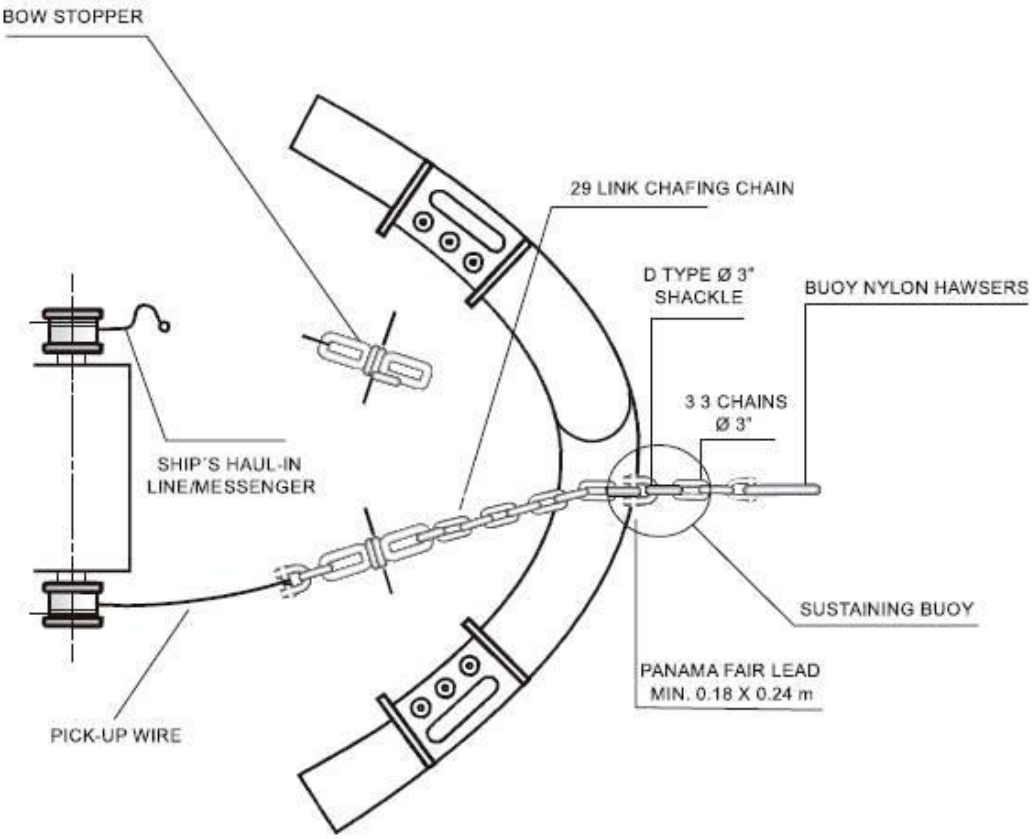
B - SPEEDBOAT TAKING THE NT TURNER TO THE MONOBUOY SPIRE



C - MONOBUOYS, CABLES, SUPPORT AND CATCHMENT BUOYS, DITCHES, ETC. - SIDE VIEW

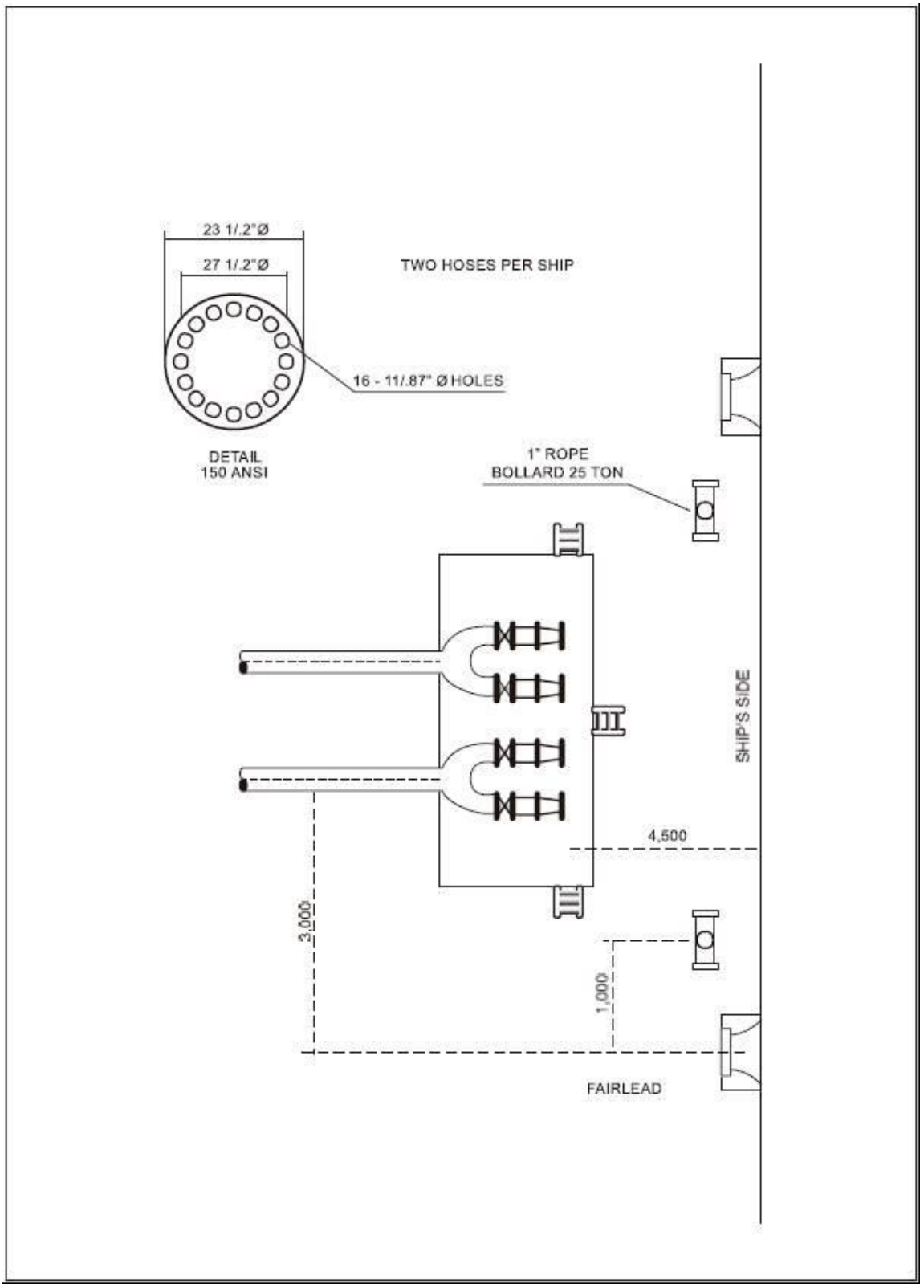


D - MOORING WITH BOW CLEAT

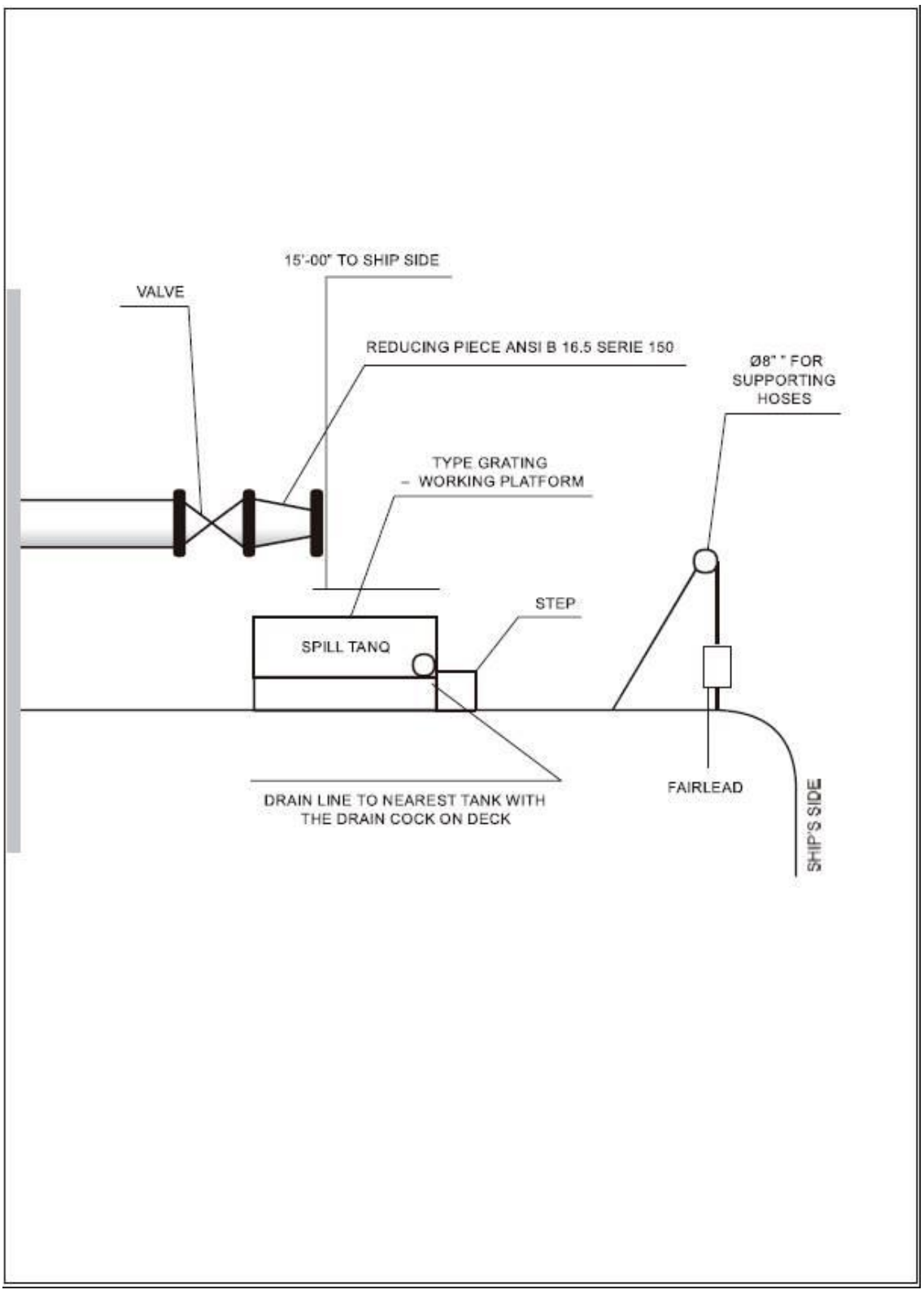


3rd METHOD:
This is the most recommended method, offering grater safety. The attrition chains pass through the central fair lead parallel to each other, and are clinched to the chain tails previously installed on the bow stopper

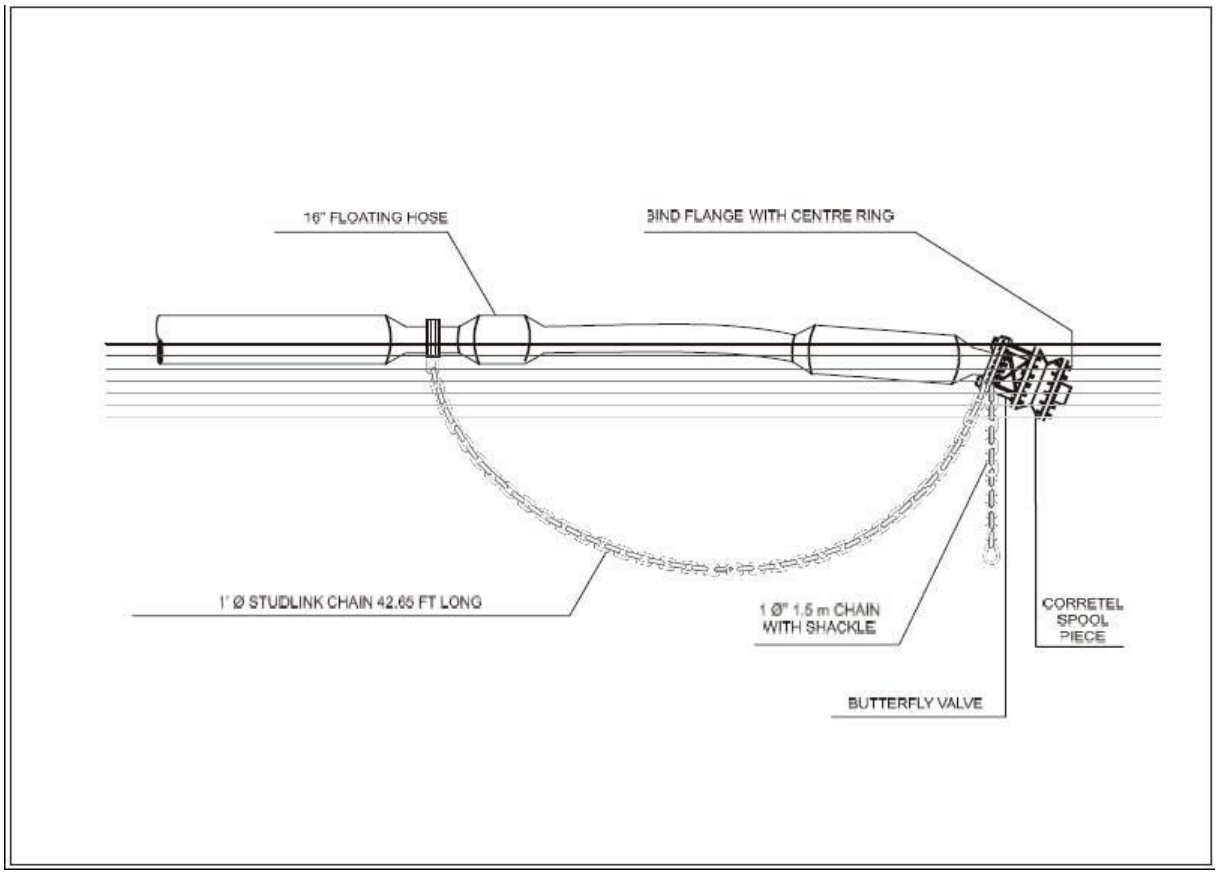
E - RECOMMENDED LAYOUT FOR SOCKETS



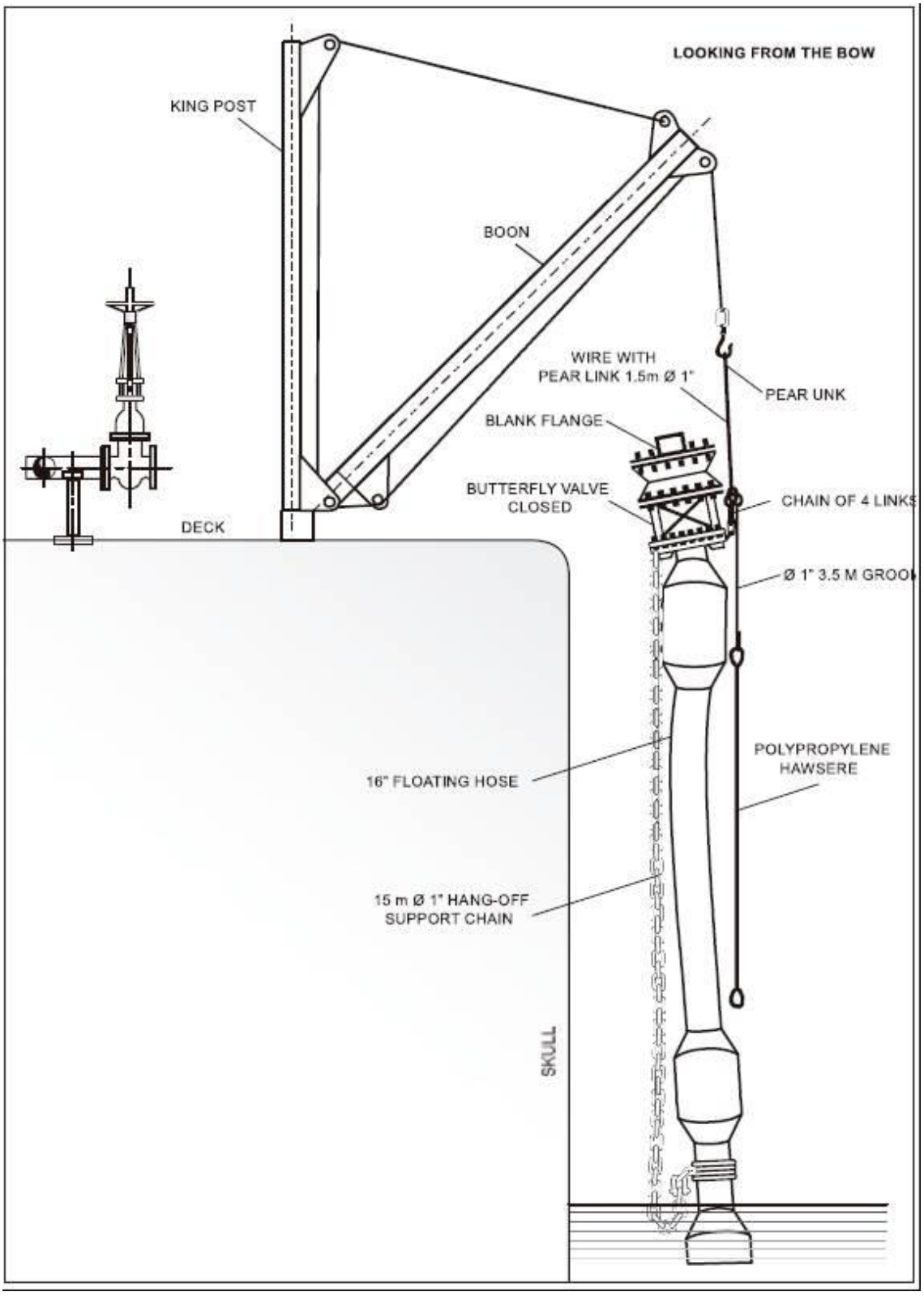
F - CROSS-SECTION OF SOCKETS



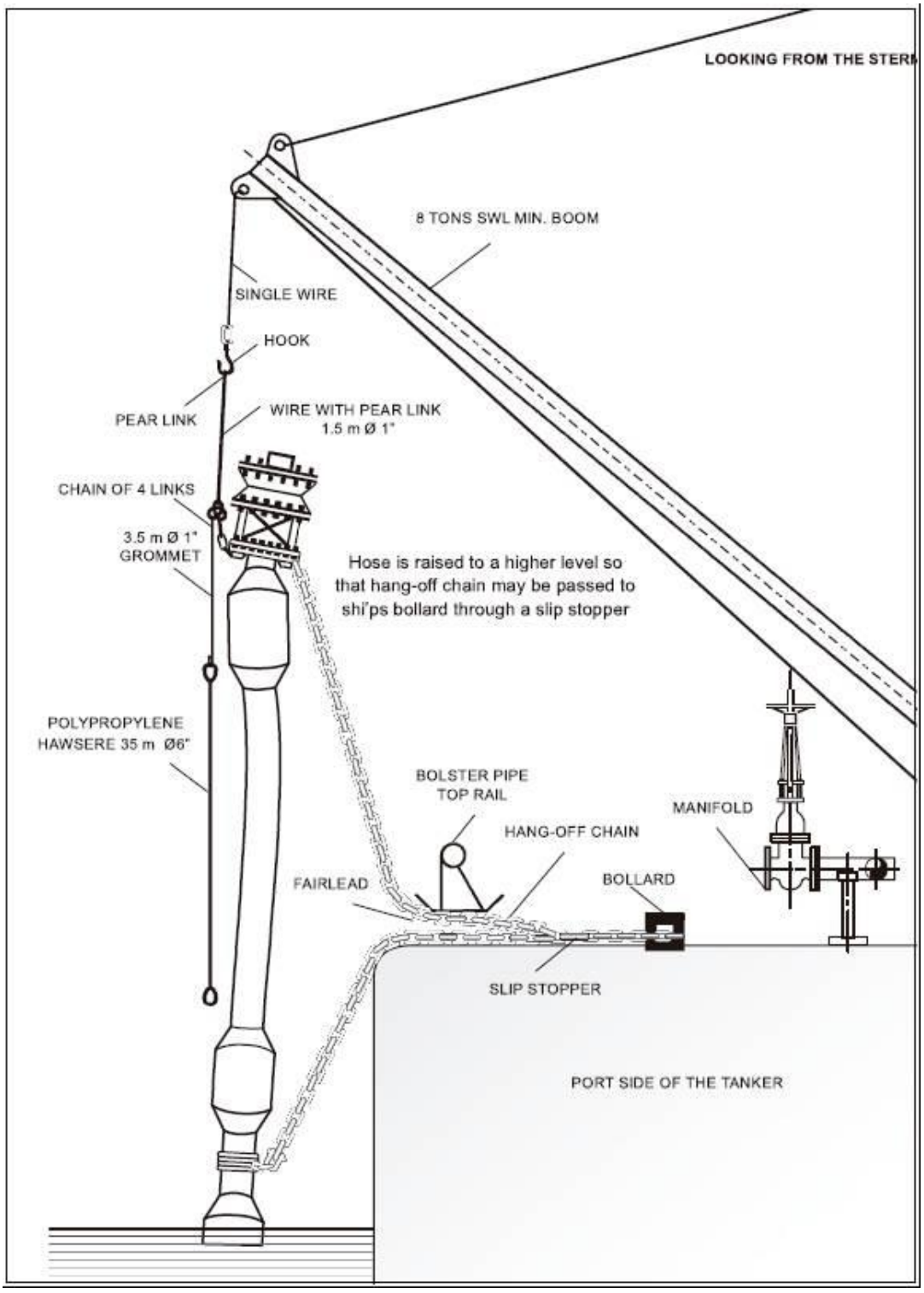
G - FLOATING HOSE, SUPPORT CHAIN, REEL, ETC.



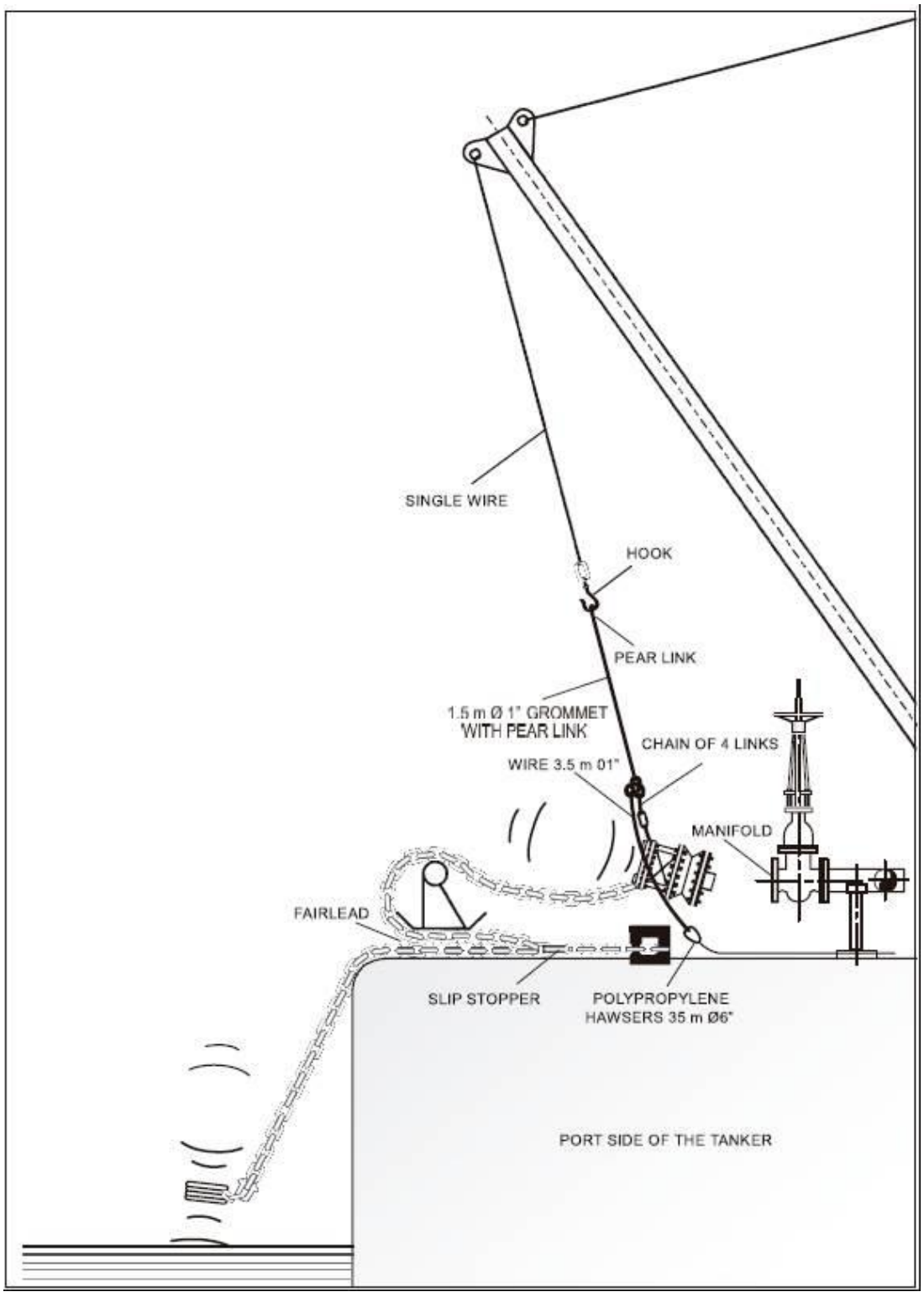
H - 1ST PHASE OF THE CONNECTION



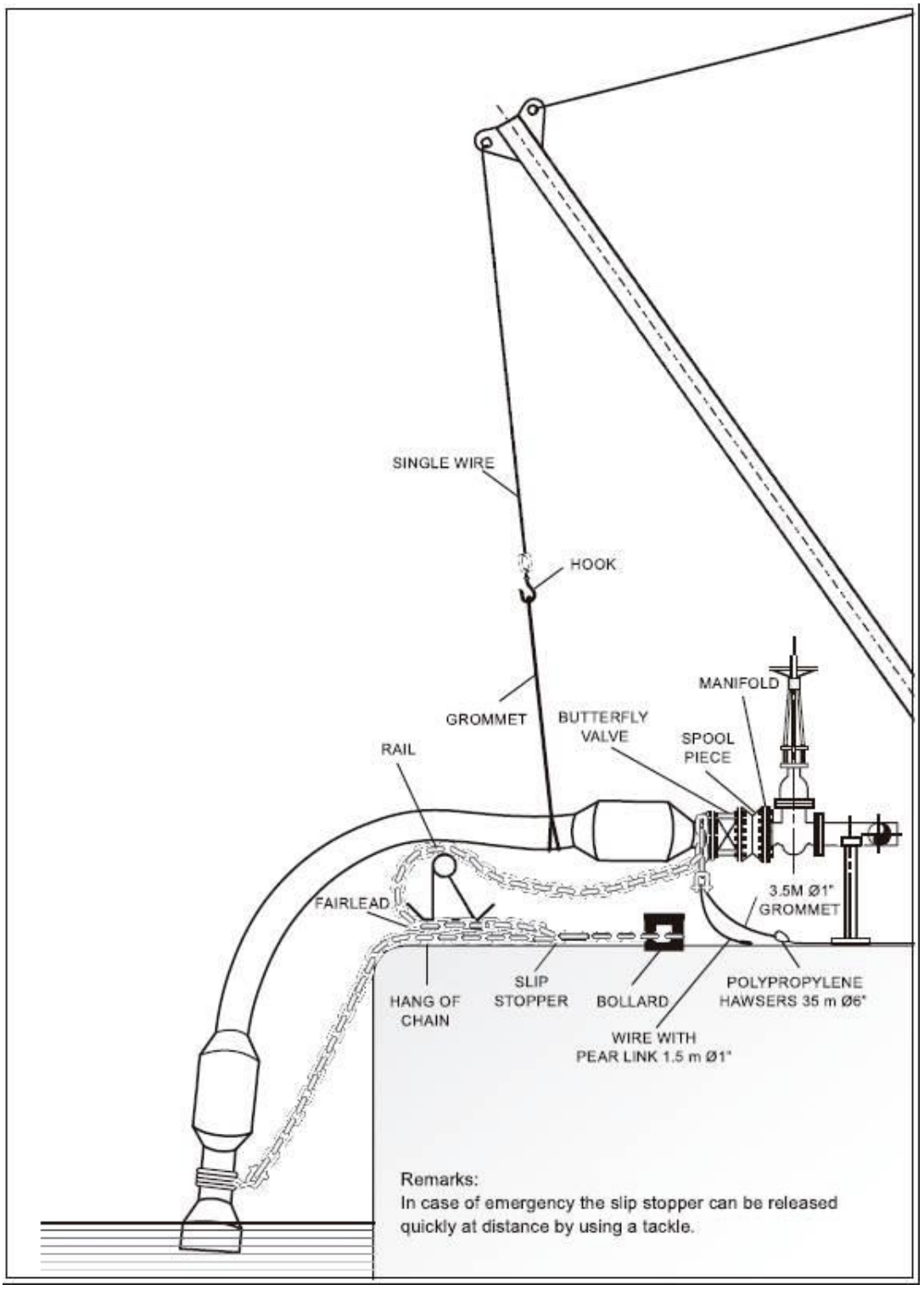
I - 2ND PHASE OF THE CONNECTION



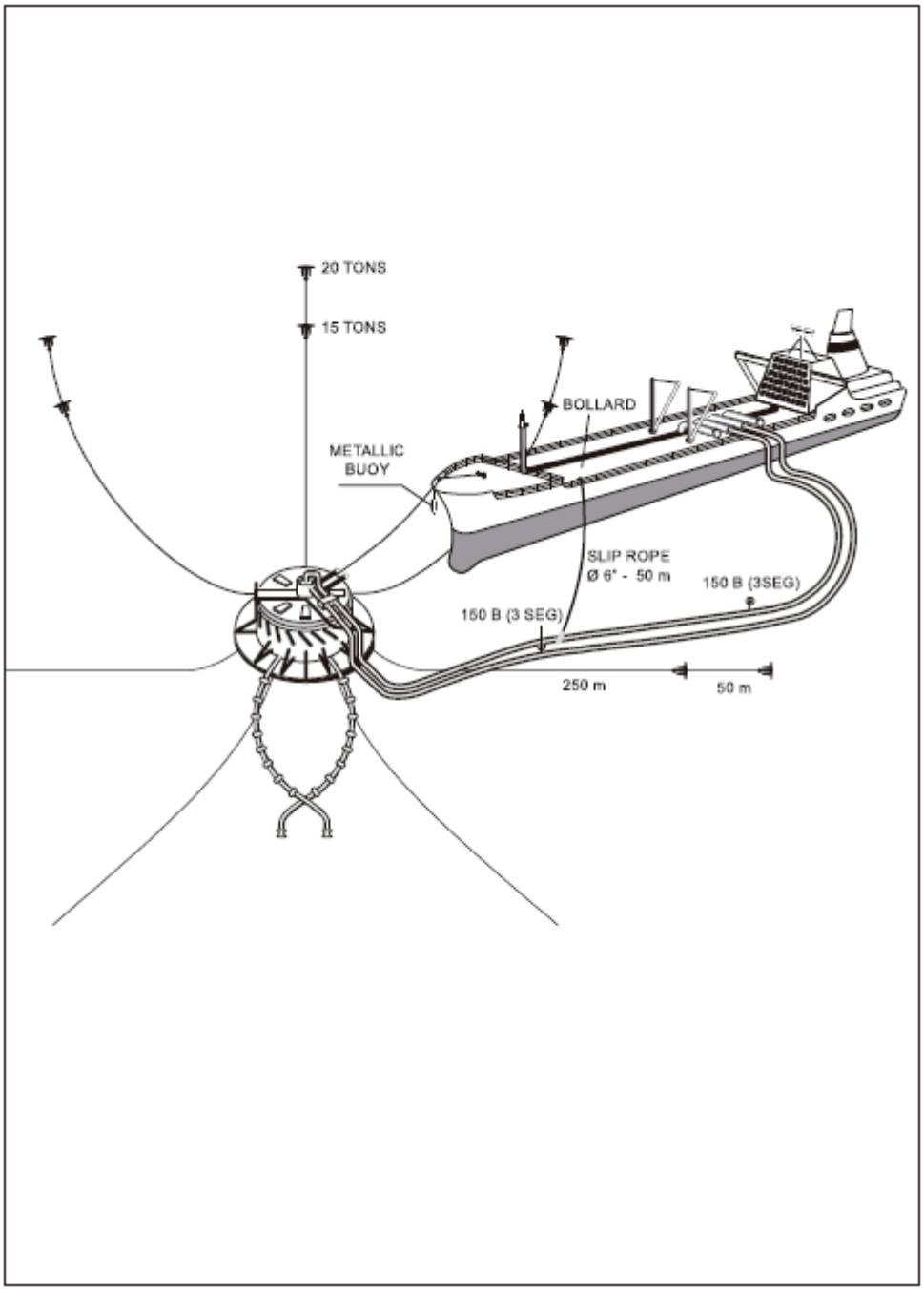
J - 3RD PHASE OF THE CONNECTION



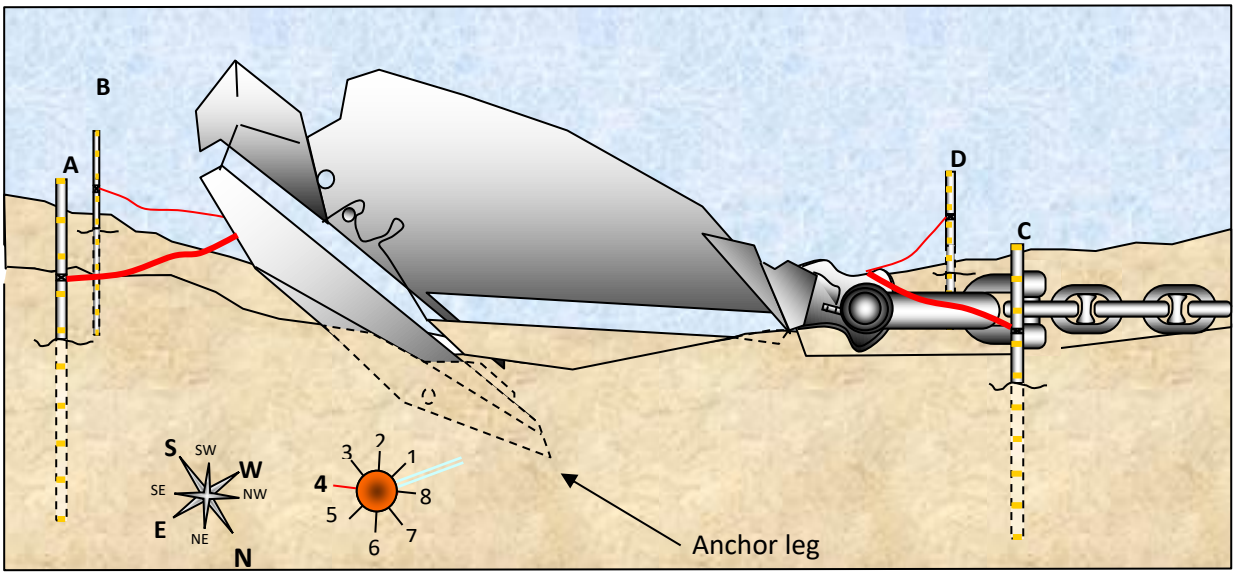
L - 4TH CONNECTION PHASE



M - GENERAL CONFIGURATION OF THE MOORING SYSTEM ON THE MONOBUOY



N - ANCHOR HHP



O - COAST OF SÃO FRANCISCO DO SUL

P - SÃO FRANCISCO DO SUL AND JOINVILLE REGION