

PRIO		Offload Terminal Regulations ABL FPSO FORTE			
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1. INTRODUCTION

1.1. General

The content of this Terminal Regulations Manual is based on OCIMF, ISGOTT, ISPS Code, SOLAS, and the terminal information sheet, but is not intended to replace any official publications with respect to the waters and areas to which it relates. Also, it is not intended to alter or nullify in any way the normal duties and responsibilities of the Master(s) of the Shuttle Tanker(s) in relation to the safety and handling of their vessels, or to conflict with established standards of good naval practice. Therefore, the final decision to carry out the Offload operations described in this document rests with the Relief Tanker Master and the FPSO FORTE OIM.

The instruction and guidance notes contained in this Terminal Regulations Manual are based on the premise of bilateral cooperation between the TERMINAL and the Shuttle Tanker Master. Close agreement between these parties prior to carrying out mooring and any offload operations is essential in all cases.

This Terminal Regulations Manual must be reviewed and updated whenever necessary. Although every effort has been made to ensure the accuracy of the content, PRIO accepts no responsibility for any omissions or errors, or any consequences arising out of or related to the use of this Terminal Regulations Manual. Specifically, the provided drawings and schematics shall not be used for the navigation of vessels approaching, leaving, or navigating within the area of the FPSO FORTE.

Notwithstanding the above or any provision of this Terminal Regulations Manual, PRIO may take any measures that may be necessary to avoid risks to human safety and health, property and the environment that may arise from any activity related to the FPSO.

The Marine Superintendent is the person designated by PRIO to advise the Master of the Shuttle Tanker in the mooring and loading operations and transfer of custody of the documentation, in line with the operational procedures of the FPSO FORTE TERMINAL and the Shuttle Tanker. When the Marine Superintendent observes any event that raises concern or that entails deviation from procedures, this occurrence must be brought to the attention of the Shuttle Tanker Master and the FPSO FORTE TERMINAL Offshore Installation Manager (who has overall responsibility for the

operation of the FPSO) and the mooring or transshipment operation must be stopped in a safe manner until a resolution is reached.

The Vessel Master shall complete the appropriate pre-mooring procedure. An International Safety Guide for Oil Ships and Terminals (ISGOTT) checklist shall be completed to the satisfaction of PRIO prior to commencing Offload operations.

The mooring operations and positioning procedures mentioned in this Tanker Manual apply to all Shuttle Tankers.

1.2. Purpose

The main purpose of this document is to outline the information and procedures necessary for offload operations to be safe and efficient. Consequently, some relevant details of specific equipment involved in the operations have been included. However, each Shuttle Tanker shall refer, where applicable, to the operating instructions of its own vessel owners / managers in relation to the installed equipment and procedures.

1.3. Legislation

FPSO FORTE is a floating facility and is subject to the Brazilian Jurisdictional Waters Regulations issued by the Brazilian Maritime Authority (Diretoria de Portos e Costas – DPC). Shuttle Tankers shall comply with all applicable Brazilian federal, state and municipal laws and regulations, including but not limited to those relating to safety, navigation, operational and environmental protection standards.

The Shuttle Tanker and its crew are subject to inspection and clearance by Customs, Immigration and Health Authorities before proceeding to FPSO FORTE.

The local Port Authority may request an inspection to be carried out on the Shuttle Tanker.

1.4. Compliance with the international security code for ships and port facilities (ISPS)

It is PETRORIO's policy to request the Relief Tanker to establish a Safety Statement with FPSO FORTE at least twenty-four (24) hours in advance of the scheduled mooring. This procedure will apply to all Shuttle Tankers, both in international and Brazilian

cabotage trade. At the time of first contact with the Shuttle Tanker's officer on watch, FPSO FORTE will require a copy of the Tanker's ISSC and a list of its last ten ports of call. Any Shuttle Tanker that has not satisfied the Company's Safety Officer regarding its situation with the ISPS and that has not completed the Safety Declaration, will not be able to moor at FPSO FORTE.

2. TERMINOLOGY

- AHTS - Anchor Handling Towing Supply – Support vessel: standby tug – support vessel that can be used to assist the shuttle tanker and the FPSO during the offloading operation.
- BCO: Ballast Control Operator – Nautical Officer operating in FPSO Cargo Control
- BDS: BOW DISCHARGE SYSTEM
- BLS: BOW LOADING SYSTEM
- BSW: BASIC SEDIMENTS AND WATER - amount of sediment and water in the oil, usually indicated in percentage terms
- CCR: CARGO CONTROL ROOM
- CPT: CAPTAIN - Vessel Commander
- DARPS: Differential Absolute & Relative Position Sensor - Absolute and Relative Positioning Differential System
- Degraded Status Criteria: It is the condition that starts when the DP Reliever Tanker loses redundancy in some equipment/system related to its dynamic positioning capacity (generation, propulsion, controllers, sensors, position reference systems, etc.)
- DGPS: Differential Global Positioning System
- DP: Dynamic Positioning - dynamic positioning system of the Shuttle Ship
- DPST: Dynamic Positioning S Huttle Tanker - oil tanker equipped with a dynamic positioning system, dedicated to oil relief operations in ocean terminals
- Dwt or TPB: DeadWeight Tonnage
- ECR: ENGINE CONTROL ROOM
- ESD: EMERGENCY SHUT DOWN - Emergency Shutdown
- ETA: Estimated Time of Arrival

- FPSO: Floating Production Storage and Offloading Facility, named STRONG and installed in the Albacora Leste field, referenced in this report as STRONG TERMINAL
- GMDSS: Global Maritime Distress and Safety System.
- Significant wave height Defined as the average measurement value of the three highest wave heights, recorded by a wave sensing device.
- Hmax: Maximum Wave Height. Defined as the likely highest wave with respect to height (Hs) by means of the expression $H_{max} = 1.86 * H_s$.
- IMCA: International Marine Contractors Association.
- IMO – International Maritime Organization
- IO: Installation O offshore – floating systems such as F(P)SO's, SBM, SBM-FSO, SPU, or even drillships or rigs that are producing, drilling, storing, or transferring oil within the geographical position of the offshore basin
- ISGOTT: International Safety Guide for Oil Tankers and Terminals
- ISPs: International Ship and Port Facility Security Code
- LHV: Line Handling Vessel
- LOA: Overall Length -- Total Length
- MANIFOLD: Set of valves and connections for oil transfer where the vessel's piping system ends. Usually located at mid-ship, allowing connection with the lines of floating hoses.
- MBC: Marine Breakaway Coupling;
- MFSV: Multi-Functional Support Vessel
- MODU: Mobile Offshore Drilling Unit - Mobile Offshore Drilling Unit
- NM: Nautical Mile - nautical mile.
- NOR: Notices of readiness - Notification of ready to operate.
- NSV: North Sea Valve – North Sea Valve – Hose End Coupling Valve BLS System
- OCIMF: Oil Companies International Marine Forum
- OESD: OIL TANKER EMERGENCY SHUT DOWN.
- OIM: Offshore Installation Manager at FPSO - FPSO Offshore Facilities Manager
- Oow: Officer of The Watch - nautical officer responsible for loading/unloading operation and stability
- OS: Operational Sector - operational sector. Sectors defined by operational limits in which offloading operations can be carried out
- OTT: Oil Tanker - Shuttle Tank

- PPE: Personal Protective Equipment – PPE, Personal Protective Equipment
- PRIO: PETRORIO JAGUAR Petróleo Ltda
- PSV: Platform Supply Vessel
- ROB: Remains on Board - Remains on Board (for cargo)
- SBM: Single Buoy Mooring - Mooring Mono-buoy – floating unit equipped with manifold for the connection of the hose and mooring of a vessel
- SBV: Stand by Vessel – Support vessel in standby in the field
- SDS: STERN DISCHARGE SYSTEM
- SIMOPS: Simultaneous Operation - Simultaneous and competing operations that may have an impact on the safety of units, the environment, and people
- SOPEP: Shipboard Oil Pollution Emergency Plan - Emergency Plan for Vessels for Oil Pollution
- SPU: Stationary Production Unit - a unit that depends on an F(P)SO, SBM or SBM-FSO to dispose of its production. This unit can be a fixed platform, a semi-submersible, a tensioning leg platform or other
- RPRS – Position Reference System
- TO: Ocean Terminal – installation from which offloading operation is carried out, such as F(P)SO's, mooring mono-buoys or combinations (RELIEF SHIP tied to a mooring mono-buoy and used as FSO).
- TON – Metric ton
- UHF: Ultra-high Frequency - Ultra High Radio Frequency
- VHF: Very High Frequency - Very High Radio Frequency
- EXCLUSION ZONES: These zones may extend to a distance of 700m around the FPSO. These zones take into account the total length of the vessels (FPSO and Tanker) and the length of the mooring line (150 m). Can be increased to 1200 m in case of use of AHTS

3. DESCRIPTION OF THE STRONG TERMINAL

3.1 Identification of the concessionaire operator

Identification of the concessionaire and installation operator

a) Name: PRIO

b) Address: Praia de Botafogo, 370, 13th floor Botafogo - Rio de Janeiro - RJ

Telephone: 55 (21) 3721-3800

3.2 FPSO INFORMATION

a) Installation name: FPSO FORTE

b) Owner: PRIO

c) IMO number: 7391824

d) Flag: Ilhas Marshall

e) Classification Society: American Bureau of Shipping (ABS)

f) Classification: FPSO – Floating, Production, Storage and Offloading

g) Year of construction: 1980

h) Year of conversion: 2004

i) Year of last upgrade: Not applicable

3.3 PRODUCTION FACILITY LOCATION

FPSO FORTE is located 114 km from the coast, at an average water depth of 1230 m deep. The location information is:

a) Basin: Campos Basin

b) Field: Albacora Leste

c) Coordinates: Datum SIRGA S2000

LATITUDE: 22° 05' 10.996" S

LATITUDE: 039° 49' 40.795" W

3.4 DESCRIPTION OF THE INSTALLATION

FPSO FORTE is a floating oil and gas production, storage, and transfer unit (FPSO); its production comes from the Albacora Leste field. The facility has the following characteristics:

a) Total length = 337.36 m

b) Length between perpendiculars = 320 m

c) Mouth = 54.50 m

- d) Depth = 27.80 m
- e) Tonnage = gross: 144,918; net: 114,133 metric tons
- f) Design draft = 21.6 m
- g) Accommodation capacity = 212 people.

4. TASKS AND RESPONSIBILITIES

4.1 MASTER OF THE DYNAMIC POSITIONING SHUTTLE TANKER

The DPST Master is responsible for operations on board his/her vessel.

The obligations set forth in this standard do not exempt the Master from complying with the rules and regulations established by international bodies and legal authorities.

The Master's obligations are:

- Ensure that during offloading operations the ship is with its equipment and systems in normal operating conditions (BLS, thrusters, generators, etc.).
- In the event of total or partial unavailability of the ship's systems and equipment, the Captain must immediately inform the FPSO Marine Superintendent (Supt. Marinha). The Marine Superintendent and the DPST Commander will assess the possibility of carrying out the approach, connection, and offloading operation and, if deemed necessary, may use an extra tugboat resource for the desired operation.
- Make sure that the ship's crew is familiar with all procedures related to approaching, mooring, positioning, and leaving the FPSO unit.
- Ensure that the ship's crew is familiar with all emergency procedures and that they are appropriately equipped with PPE.
- Establish communication with the FPSO at least two hours before reaching the 10 nm zone.
- Inform the FPSO that the DPST is ready for approach, in addition to informing when the 10 nm zone is reached (issue the nor).
- Make sure that there is a complete understanding of the FPSO and the support boat (if any) regarding the approach plan.

- Check the mooring equipment for defects or failures that may impact the safety of offloading operations.
- Maintain communication with the FPSO throughout the previously agreed channel loading operation.
- Make sure that the DPST loading system is ready to start the offloading operation and inform the FPSO.
- Report every hour the total load on board, the average rate of loading and the estimated time to complete loading.
- The hose and mooring cable tension must be monitored throughout the entire period of operation.
- Immediately report to the FPSO in the event of an unforeseen situation that affects the ability of the DPST to maintain the position.
- Inform the FPSO when the DPST is ready to disconnect the loading hose.
- Report to the FPSO when the DPST is outside the 500-meter zone.
- Assist the execution of all tests related to the DPST approval and acceptance process by PRIO, as well as the execution of annual tests.

4.2 MASTER OF THE SUPPORT VESSEL

The SUPPORT BOAT Captain is responsible for operations on board his vessel.

The obligations set forth in this standard do not exempt the Master from complying with the rules and regulations established by international bodies by legal authorities.

The Master's obligations are:

- Make sure that the crew is familiar with all the procedures related to the approach, mooring, positioning and departure operations of the FPSO unit.
- Make sure the crew is familiar with all emergency procedures and is properly equipped with PPE.
- Make all necessary preparations prior to operations as instructed by the FPSO.
- Monitor the radio, on the combined service channel for communication between the DPST and the FPSO.
- Assist in monitoring traffic around the operational area (500 meters) in cooperation with the DPST and the FPSO. If an unforeseen situation occurs that affects the safety of the operation, all parties must be informed immediately.

- Report any failure in the mooring or offloading system to the FPSO.
- Assist in operations as instructed or ordered by Marine Superintendent or the DPST Master.
- Be prepared to offer emergency assistance at any time, which may include scenarios of:
 1. Rupture/failure of mooring line or offloading hose.
 2. Power outage in DPST.
 3. Collision
 4. Fire or Explosion
 5. Oil spills
 6. Man overboard

4.3 FPSO Marine Superintendent (Supt. Marinha)

All operations and routines in the FPSO are controlled and monitored in the Operations Control Room. The responsibilities of the Marine Superintendent with respect to operations on board and around the FPSO are described in this chapter.

Are obligations of FPSO Marine Superintendent:

- Ensure that the crew who is involved with the operation is familiar with all procedures pertinent to offloading operations in general.
- Make sure the crew is familiar with all emergency procedures and is properly equipped with PPE.
- Ensure that the FPSO crew involved in the operation with the DPST is familiar with all procedures pertinent to the approach, mooring, positioning and exit operations of the DPST, including the operation of the SRP.
- Ensure that during offloading operations the FPSO is with its mooring equipment, connection, loading, and position reference systems in normal operating conditions
- Make all necessary preparations before the arrival of the DPST.
- Inform, via email, the DPST Master about problems or irregularities with the mooring system, offloading and/or positioning reference systems on the FPSO.

- Establish communication with the DPST Master before entering the 10 nm zone.
- Inform the DPST Master of the occurrence of simultaneous operation with another vessel in the exclusion zone or in its vicinity, and that may become an obstacle or restriction to the operation and navigation of the DPST.
- Issue information report to the DPST Master in case of changes in mooring equipment, buoys and other information that may be of importance for navigation in the 10 nm zone.
- Coordination and communication with the DPST Master during approach, mooring and unmooring operations. In addition, inform the DPST Commander about maneuvering restrictions that may affect the effective SRP in use.
- Coordination of the operation of the SUPPORT BOAT when necessary and keep the DPST commander always informed of actions and decisions.
- Give information on loading and local weather forecast report to DPST Master.
- Report every hour the total load exported and the average rate of the last hour.
- Responsible for stopping oil transfer in an emergency situation.
- The Marine Superintendent is responsible for the entire Offload operation, on the part of the FPSO.

PRIO assumes no liability for collision with or any other damage to an offshore installation due to:

- Neglect of navigation.
- Rudder machine failure.
- Main motor failure.
- Or other technical issues that may occur on board the DPST.

5. SUPPORT VESSEL

It is understood as a support vessel, or support boat, the tugboat designated for mooring and support to the offloading operation.

PRIO may make available the resource of a tugboat to carry out the “pull back” operation in the DPST for offloading, observing the procedure described below.

5.1 TUG REQUEST

The eventual need to use a tugboat must be assessed by the DPST Master, taking into account the existence of a state of degradation, the environmental conditions (wind, current and waves - magnitude and direction of incidence) and information regarding the availability of a offloading (bow / stern).

The DPST “Degraded Status” should always be consulted to support decision-making regarding the most appropriate mode of operation, as well as the additional resources to be employed in the operation.

The request for tugboat must be made by the Master of the DPST to the Marine Superintendent of the FPSO, via VHF radio, informing the time constraints to operate safely, soon after its evaluation for approach.

- 1- In the specific case where the preferred offloading station is inoperative, the Marine Superintendent shall consult the DPST Master on the need to use a tugboat during the offloading operation based on the current and expected environmental conditions.
- 2- In order to comply with the recommendation arising from Risk Analysis of the use of tugboat in offloading operations, Marine Superintendent must schedule a tugboat and inform the DPST Master of the obligation.
- 3- There must be a monitoring of the weather forecast for the day of the Offload operation in order to anticipate the request for the support boat, pull-back, for the company's Boat Logistics.

5.2 SUPPORT TUG CAPACITY REQUIREMENTS

Minimum static traction (Minimum Bollard Pull) - with proof through the Bollard Pull Certificate:

- Employ tugboats preferably with a minimum static traction of 130 Tf (one hundred and thirty tons-force) to support the operation with DPST in the STRONG FPSO, anchored in spread mooring.

5.3 MOORING THE TUGBOAT TO THE DPST

The best safety practices in this operation must be adopted in accordance with the Safety Manuals of the DPST and the support vessel.

The approach operation of the tugboat will be previously agreed with the DPST, through VHF communication, which will guide it as to the best position to pass the messenger cable.

As a safety measure in case of bad weather, emergency or urgent need to disconnect the tugboat, it is desirable that the DPST be provided with a quick release device for AHTS mooring, installed on the axis of the aft deck and with the following characteristics: - 100 SWL tf load capacity; - Decoupling of the tensioned towing cable, adopting as a reference the value of 200 KN (20 tf).

The absence of a Quick Release System (Pelican Hook) will not be considered an impediment to the operation.

The Master of the support Tug is fully responsible for the operation and conduct of its vessel. The additional duties stated in this Terminal Regulations Manual do not exempt the AHTS Master from complying with the rules and regulations given by national authorities and/or other legal authorities. These additional duties include, but are not limited to:

- Ensure officers and crew directly involved with the operation are familiar with all procedures, including emergency procedures, relevant to approach, topline connection, positioning and departure operations. Make sure the crew is properly equipped with the use of PPE;
- Make all necessary preparations for maneuvering prior to arrival at the DPST as instructed by the FPSO;
- Monitor the radio on the agreed working channel for communication between the DPST and the FPSO;
- Report any failures in the mooring systems, machinery or positioning of the tug to the FPSO;
- AHTS must provide assistance in the event of: loss of DPST machines during any phase of the operation; collision; fire or explosion; oil spill; man overboard; etc;

- For the Offloading operation, the tugboat must promptly comply with all DPST Master instructions regarding its positioning, pulling or slowing of the towing line

The AHTS shall be in readiness to perform the following operations:

- Assistance to the DPST as necessary:
- Search and rescue.
- Proximity of any other facilities within the F (P) SO exclusion zone.
- Avoid collisions or vessels diversion.
- Response to oil spills.
- Emergency tugging.
- Man over board.
- Surveillance on the area.
- Other potential emergency situations.

6. OPERATIONS SECURITY

6.1 ENVIRONMENTAL CONDITIONS IN THE CAMPOS BASIN

Campos Basin:

The environmental conditions in the Campos Basin can, in general, be considered quite good, tending to have, throughout the year, the behavior informed in the tables below.

Northeast winds prevail in the Campos Basin with an intensity of 16.5 knots (8.5 m/s) on average. Special care must be taken regarding the occurrence of a cold front coming from the southwest, which bring sudden changes in wind direction - from NE to SW in less than an hour - and the occurrence of wind gusts of up to 55 knots (28.3 m/s). This phenomenon is more likely to occur in autumn (March to May) and spring (September to November).

Taking into account the probability of individual wave height occurrences, northeast waves prevail with significant wave heights (Hs) ranging from 0.5 to 1.0 m.

The “Brazil sea current” moves south along the Brazilian coast. It exerts a lot of influence in the Campos Basin area, especially in water depths of 200 m. Despite being stable, available data show that there are some oscillations and sometimes even incidences of inversions have occurred, probably associated with cold fronts and other

meteorological and oceanographic phenomena. Data recorded from several smaller areas of the Campos Basin show that there is more concentration of currents moving south with a speed of 0.8 m/s (1.5 knots). However, current speeds up to 1.5 m/s (approx. 3.0 knots) moving south were also recorded.

Months	Description
November to March	Quite good
April to June	Variable
July to October	severe weather conditions

Environmental conditions in the Campos Basin

	Months	Hs [m]	PREDOMINANT DIRECTION
Wave	Jan - Mar	3,0 3,5	NE - E - 60 %
Hs	Apr - Jun	4.0 4.5	S-25
(meters)	Jul - Sep	4.5-5.0	S-24
	Oct-Dec	3.5-4.0	NE-E - 56%
	Months	V(m/s)	Predominant direction
Wind	Jan - Mar	16 - 17	N - NE - 65%
(m/s)	Apr - Jun	17-18	N - NE - 42 %
	Jul - Sep	17-18	NE - E - 50 %
	Oct-Dec	18-19	N - NE - 57%
	Basin Region	V(m/s)	PREDOMINANT DIRECTION
Current	North Area	1.4	S - 62 %
(m/s)	Central Area	0.95	SW - 62%

Data obtained for a return period of 1 year, the probability of exceeding the values above is 1%.

6.2 FPSO

Typically, FPSOs have Turret or Spread anchorages. The STRONG FPSO has Spread Mooring anchorage.

For mooring the DPST to the FPSO is done through a mooring cable called Hawser, for greater detail follows Annex-1 with the arrangement of the mooring system.

The hose is used to transfer the oil from the FPSO to the DPST. The hose line will not be assembled with MBC. In case of emergency, the blockage will occur by NSV.

6.3 SECTORS AND OPERATIONAL LIMITS

Operational sector for FPSO anchored in spread mooring system (SMS):

GREEN ZONE: Sector in which the DPST is allowed free movement of the bow during offloading. In this sector, the limits for normal offloading operation are **50 degrees (from edge of risers) and 75 degrees (on the other side)** heading relative to the centerline of the FPSO.

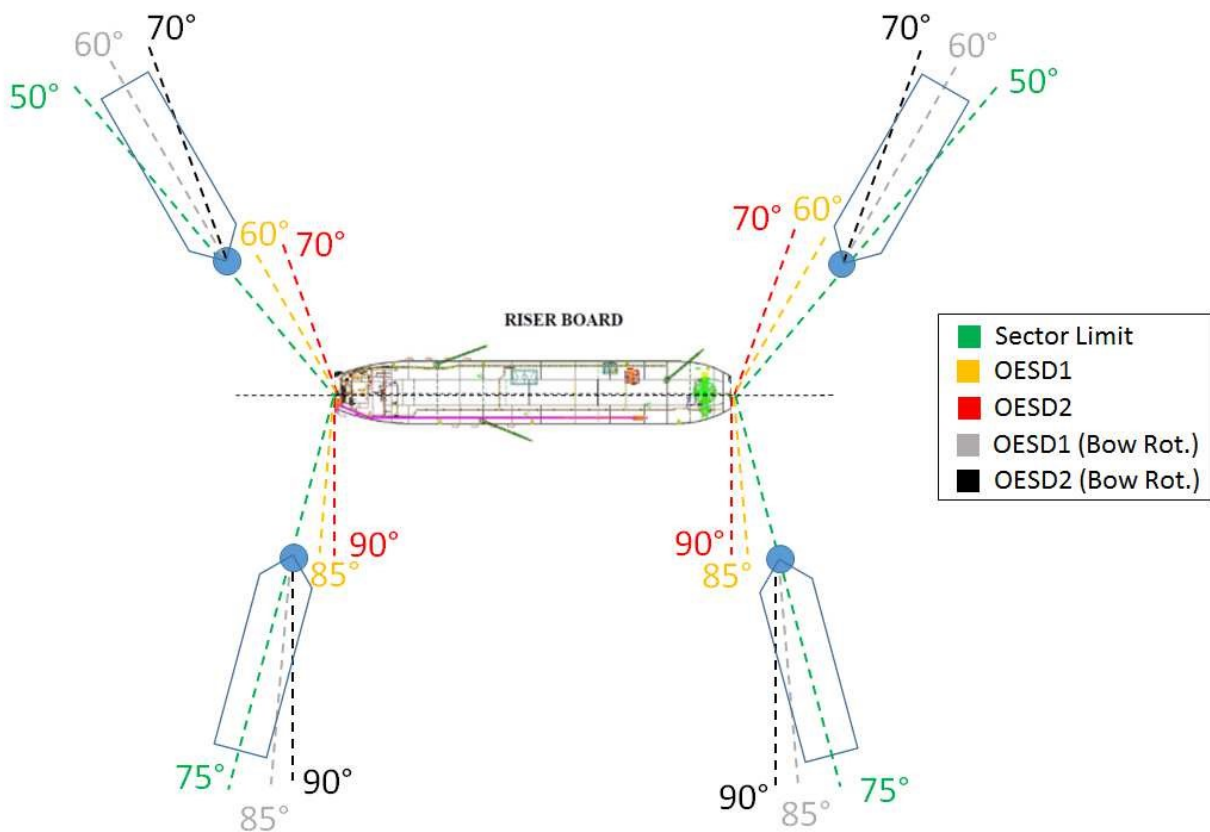
YELLOW ZONE: Sector in which the DPST is allowed to remain only long enough for the Master to try to bring the vessel back to the GREEN ZONE using the resources currently available. When the vessel reaches the **60 degrees (edge of risers) and 85 degrees (another edge)**, the DPST Master will inform the F(P)SO OIM, requesting the immediate interruption of the offloading operation. The DPST Master must activate OESD 1, emergency stop procedure. The DPST shall be aware of a worsening of environmental conditions, ready to activate the BLS emergency disconnect using the emergency stop procedure (OESD 2).

RED ZONE: Sector in which the DPST is not allowed to stay. When the vessel reaches the mark of **70 degrees (riser board) or 90 degrees (other board)**, the Master must immediately perform the emergency disconnection of the BLS from the *offloading* hose line and the disconnection of the mooring system – OESD 2. In this case, the DPST crew must be prepared to work safely in accordance with an emergency

situation. Under no circumstances should the DPST be allowed to remain in the RED ZONE.

BOW ROTATION:

- **50° to 60° (edge of risers) and 75° to 85° (opposite edge):** Sector in which bow rotation is allowed, provided that it is within the GREEN ZONE;
- From **60° (risers' edge) and 85° (opposite edge):** immediate onset of OESD1;
- From **70° (risers' edge) and 90° (opposite edge):** immediate start of OESD2.

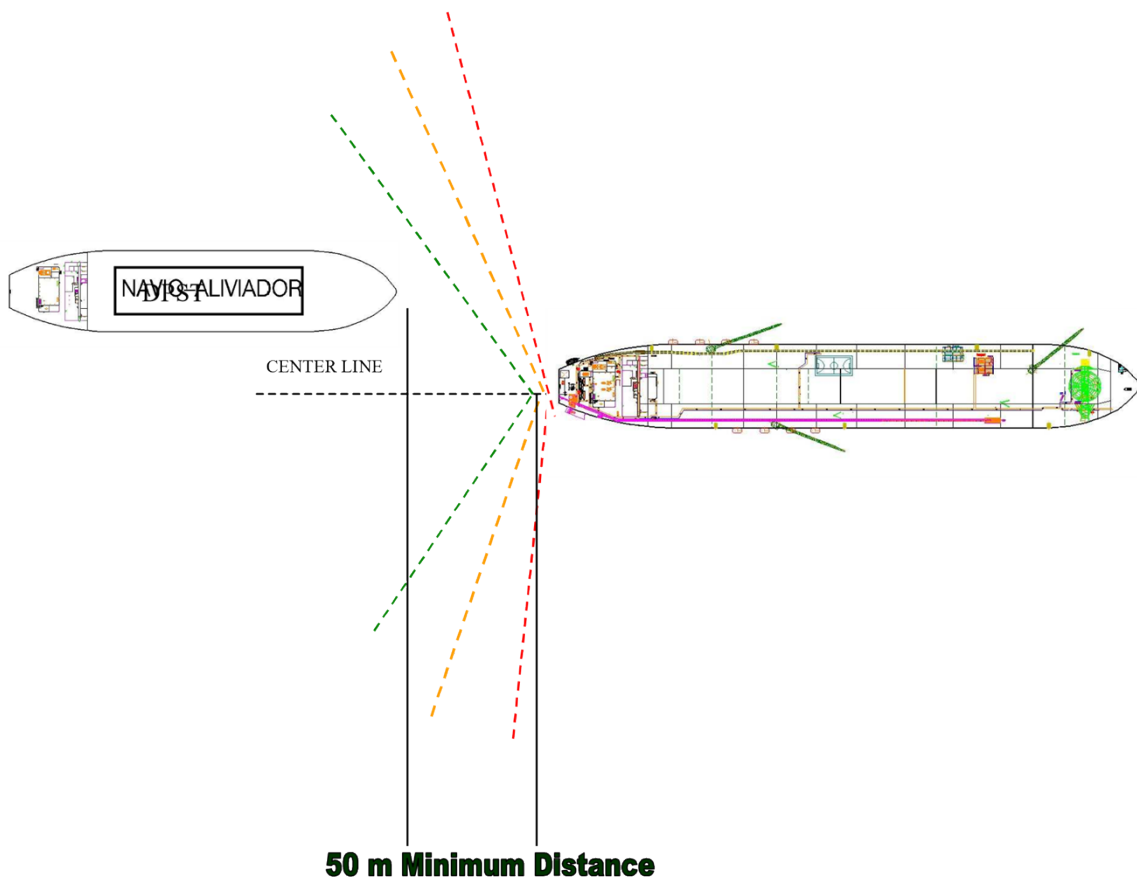


Operational sectors for FPSO anchored in Spread Mooring System

NOTE: These are the limits recommended as standard procedure for FPSO/SMS (*).

(*) Specific situations, not provided for in this procedure, must have their operational risks individually analyzed and discussed between the DPST Master and Marine Superintendent being validated by formal approvers designated by the companies involved in the operation.

Minimum distance between FPSO and DPST during approach:



Minimum Distance DPST-FPSO during approach

6.4 ENVIRONMENTAL LIMITATIONS

The table below presents the limit values referring to the environmental and operational conditions for the approach and offloading operations.

- DP2 Relievers in spread unit.

ACTIVITY	DESCRIPTION	WORST ACCEPTABLE OPERATING CONDITION
Approaching and mooring	Wind	40 knots
	Wave height	3.5 m
	Power Generation and Propulsion	80% of power generation and propulsion on a continuous basis.
	Visibility < 1852 m	Approach and mooring can be started, provided that: <ul style="list-style-type: none"> • Visibility is more than 1000 meters ahead of the bow of the DPST • Radar and Reference Systems (DGPS) are operating correctly • The DPST and FPSO Commander agree that it is safe to make the approach
	Visibility < 1000 m	The DPST Captain, SUPPORT BOAT (if any) and FPSO MarineSupplier, together must evaluate and agree, if safety conditions exist
Offloading operationng	Wind	50 kn
	Wave height	3.5 m
	Power Generation and Propulsion	80% of power generation and propulsion on a continuous basis.

Relieving environmental limitations DP2 in spread unit.

Arousal level

The alert state is given by adverse environmental conditions that threaten the safety of TOs, SPUs and DPSTs during offloading operations. The main purpose of the alert

state is to increase the safety level and prevent damage to the *Offshore* Installation, DPST and oil spill.

The State of Alert comprises three stages:

Alert Status One: starts when the wind reaches the limit allowed in the condition on approach and mooring.

The Marine Superintendent, the DPST Master and the SUPPORT BOAT Master, if any, must maintain constant attention on VHF channel 16. The FPSO must be ready to stop the *offloading* operation at any time.

Alert State Two: begins when the wind exceeds the allowable limit in the condition on approach and mooring. The DPST Master shall initiate the emergency stop procedure (OESD 1). The DPST should be ready to initiate emergency disconnection of the BLS offloading hose line and disconnection of the mooring system using the emergency stop procedure (OESD 2).

Alert State Three: starts when the wind reaches the allowable limit in the offloading operation condition.

The DPST shall perform the disconnection of the BLS hose line and disconnection of the mooring system (OESD 2).

ADDITIONAL REMARKS: Personnel should return to their routine in the event of an alert state being interrupted. In case alert status two or three is interrupted, Marine Superintendent must be consulted on the measures to be taken.

6.5 TENSION IN THE MOORING CABLE (HAWSER)

Any DPST is required, while carrying out an Offloading operation at an OF, to be equipped with a mooring hawser tension monitoring system.

The tension in the mooring line must also be monitored on board the FPSO, and the indications must be followed by the FPSO operator and the DPST officer, especially under bad weather conditions.

Under normal circumstances, the tension of the mooring line is mild (slacked). The maximum tension during operation should not exceed 100 ton. An alarm will sound at the FPSO control station, the DPST bridge and the BLS station if the traction reaches this maximum value. If, within a period of one hour, there are three voltage peaks of 100 tones, the offloading operation must be interrupted, and the disconnection performed.

In case of failure of the mooring cable or any other component of the mooring system, it is mandatory to immediately stop the offloading operation and disconnect the offloading hose line.

Distance to FPSO and tension limitation of mooring line during Offloading:

Relative distance DPST x FPSO	Mooring cable tension (Tons)	Shares
90 m or less	---	Red alarm (too close) Enable "OESD 2" (Disconnect hose on BLS) RELEASE MOORING HAWSER
90 < L < 100 m	---	Yellow alarm (close) stop offloading Enable "OESD 1" (Close valves on BLS)
100 < W < 110 m	---	Contact FPSO Prepare the offloading stop
110 < L < 120 m	---	Proximity warning status Alert
120 m	---	Lower limit for offloading
145 to 155 m	< 5 ton	Normal offloading
165 M\$	30 < T < 60 ton	Arousal level

A atualização deste documento é garantida apenas através do Sistema Online. Cópia Controlada é indicada através de carimbo, do contrário, qualquer cópia em papel é considerada como exemplar Não Controlado, podendo ser consultado em situação específica. Caso este documento seja aplicado para alguma atividade, solicitar Cópia Controlada a Área de Controle de Documentos.

	60 < T < 100 ton	Contact FPSO and prepare the offloading stop
More than 170m	T = 3 x 100 peak tones per hour	Yellow alarm (away) Stop offloading Enable “OESD 1” (close valves on BLS)
	Traction above 100 ton	Red alarm (too far away) Activate “OESD 2” manually and disconnect the mooring line

Mooring line distance and pull limits

6.6 EMERGENCY STOP

The BLS of the DPST has an emergency stop system - OESD (*Offloading Emergency Shut Down*) that alarms and interrupts the offloading operation.

This system will be activated automatically when there is a break in the **green line** due to any abnormality in at least one of the security elements that are continuously monitored by the BLS system; or it may be triggered manually, by order of the DPST CMT, on the bridge console or at the BLS station in the bow, when there is an emergency situation.

“Green Line”:

The **BLS** is equipped with a Green Line system, which is the designation employed for a few functions and interlocking, which must be actuated to allow offloading operation.

the indication of **READY TO OPERATE (LOADING: READY/NOT READY)** occurs when all the green lights are on. Subsequently, the **PUMPING PERMITTED button (YES/NO)** must be activated in the DPST.

Location	Condition
DPST	• Chain stopper – closed
	• Hose end position (in)
	• <i>Coupler Valve</i> hydraulic claws closed

	• Coupler valve open
	• Inboard valve open (In board valve – open)
	• Cargo valve – open
	• Transfer pressure (≤ 7 bar) (Crude oil pressure – normal)
	• OESD 1 or OESD 2 not activated
	• Pressure of hydraulic accumulators (above 180 bar)
	• Permission to upload enabled

Green Line Components in DPST

In DPST there are two levels of emergency stop – OESD 1 and OESD 2:

- **Offloading Level 1 Emergency Stop – OESD 1 (Manual / Automatic)**

Activating this emergency stop will trigger a logical sequence of actions in the DPST BLS system, which will result in closing the coupler valve and interrupting offloading.

OESD 1 can be started **manually** by DPST as a result of any of the facts listed below:

- Oil Spill
- Degraded state in the DP system of the DPST.
- Damage/rupture in the mooring cable (hawser) or loading hose (hose).
- Bump Hazard
- Fire or Explosion
- Loss of position of the DPST (drive off / drift off).
- Power outage (blackout).
- Exceed the pre-established tension of the mooring cable (hawser).

OESD 1 **automatic** occurs under the following circumstances:

- Charging pressure in manifold lines ≥ 7 bars.
- Failure in coupling the hose with the coupler valve.
- Unlocking the chain stopper.

- Unlocking the coupler valve coupling jaws.
- Closing of the inboard / couple valve.
- Closing of the inlet valve in the DPST cargo tanks.
- BLS UPS power failure
- Communication fault between computer and PLC

Level 2 Offloading Emergency Stop - OESD 2

The activation of this emergency stop will trigger a logical sequence of actions in the BLS system, which includes the results described in OESD 1, in addition to the disconnection of the offloading hose and the mooring cable (hawser), which will be automatically thrown overboard.

OESD 2 **can only be started manually** from the DPST and will result in:

- Initiation of OESD 1 (if not already started).
- The sprinkler system in the bow manifold area will be activated.
- The ventilation system of the hydraulic unit compartment will close.
- The coupling jaws of the hose with the coupler valve will open.
- The chain stopper will open and the hawser cable will be released.

NOTE: OESD 2 SHOULD ONLY BE USED IN EMERGENCIES OR ON THE OCCASION OF ANY SCHEDULED TEST.

- **Activation of OESD 1 or 2 back up:**

In case of failure in the electrical and/or hydraulic system of OESD 1 or OESD 2, its activation can be done by activating the manual valves, which used the resource of the hydraulic accumulators of the BLS system, installed in the bow. The electrical system will be supplied by a UPS, on an emergency basis when the main power failure occurs.

- **Offloading emergency stop simulation:**

It is recommended that OESD simulation (OESD 1 and OESD 2) be performed each year. A connected hose line is not required to perform the simulations.

Simulation of OESD sequences can be performed from the following locations in DPST:

- Walkway (mandatory).
- Cargo Control Room
- Local bow station.

- Variables monitored in the DPST:

- Pressure on the manifold – is the absolute pressure indicated on the BLS.
- Tension in the hawser – is the force indicated on the BLS jaw.

- Variables monitored in the FPSO:

- Flow, temperature and pressure in the piping interconnected to the offloading hose;
- Tension in the hawser on the FPSO side;
- Status of transfer pumps (ON/OFF) – indicates whether the oil transfer pumps are on or not.

The FPSO BCO will maintain VHF contact throughout the operation with the DPST, and in case of emergency, "stop-stop-stop" will be informed, and the PUMPING STOPPED IMMEDIATELY. The bow watchman must also remain under surveillance at the FPSO Offloading station, and in case of emergency, immediately inform the Operation Control to stop the pumping.

6.7 SIMULTANEOUS OPERATIONS (SIMOPS)

- **Helicopter Operation:**

The DPST Master and the SUPPORT BOAT Master, if any, must be advised, in advance, by Marine Superintendent about any helicopter operation near their vessel.

Helicopter operations during offloading are allowed, and any possibility of interference with the reference systems that are active in the operation must be observed in advance.

The helicopter operation in the DPST, during the offloading operation, will only be possible if previously authorized by Marine Superintendent, subject to the following preconditions:

- The offloading operation must be interrupted;
- The cargo tank pressure must be reduced, and the vent-posts must be closed;
- The operation must take place in accordance with ICS (Guide to helicopter / Ship operations) and NORMAM.

- **Competing maritime operations**

All vessels not directly involved in the offloading operation, such as: support vessels, and special vessels (Probes, UMS, RSV, PLSV etc.), must remain at a safe distance, guided by Marine Superintendent. For current maritime operations, occurring simultaneously, the evaluation is made by the DPST's Captain, support vessels Masters, together with the FPSO's Marine Superintendent, for verification and analysis of sea conditions and escape routes of the vessels, in case of loss of machinery.

It is mandatory that the Marine Superintendent confirms with the DPST Master, when he is positioned at 10 NM from the FPSO, that he has prior knowledge of the information regarding the presence of obstacles to the approach of the DPST and that the planned escape route is unimpeded.

6.8 WEATHER FORECAST

Weather forecast reports can be emailed from an Offshore Facility or from shore bases to the DPST and the SUPPORT BOAT Commander (if any) during the operation.

Alternatively, weather forecast information may be obtained from the following sources:

- Brazilian Navy: access internet - www.dhn.mar.mil.br/chm/meteo/inst/index.htm
- National Institute for Space Research: access the internet - www.cptec.inpe.br

6.9 INERT GAS SYSTEM

All Tanker Vessels scheduled to load at the FPSO FORTE Terminal shall arrive with fully inert cargo tanks with oxygen levels less than 8% by volume and pressurized as required by ISGOTT regulations. The DPST cannot start lashing if the oxygen level is above the minimum required.

Typically, pressure cargo tanks will not be inspected by the Terminal Representative, provided that a declaration signed by the Master prior to the commencement of oil transfer operations confirms that all Offtake Tanker compartments have been prepared in accordance with ISGOTT regulations.

1. Inert gas system failure

If at any time the Inert Gas System fails during the transfer operation or the cargo tanks are not maintained in prescribed conditions, all operations will be suspended until the Inert Gas System is again operational or the tank oxygen atmospheres are below 8% as required by ISGOTT. The cost of any delays incurred will be for the account of the owner/charterers.

2. Tank inspection, measurement, and sampling

Cargo tanks shall not be opened to the atmosphere during measurement and sampling. The inert gas pressure should be maintained around 200 mbar. There will be no local inspection of the cargo tanks of the Relief Ship, the DPST Commander must formalize in a signed and stamped document, the initial condition of the tanks for loading.

There will be collection of samples from the loaded tanks after 85% of the pumped load, in order to be sent for analysis in the FPSO laboratory. The samples will be sent by messenger cable at the Offload station, by the Deck team.

7. COMMUNICATION

During all phases of the operation, it is essential that there is perfect communication between the FPSO and the DPST using at least two means of communication in the VHF,

which must be tested before each transfer operation in order to ensure the continuous and effective maintenance of communications between these units.

Communications must be conducted in Portuguese or English to avoid misinterpretation.

The method for establishing contact between the DPST, the SUPPORT BOAT, if any, and the FPSO is the use of VHF channels and the type of information to be transferred is described in this section.

7.1 COMMUNICATION EQUIPMENT

- **Main radio station:**

FPSO and DPST shall be equipped with GMDSS equipment.

- **Loading station, bridge and BLS station**

During the entire operation, two marine VHF channels must be monitored, channel 16 and the one stipulated by the FPSO for the operation, usually channel 72. The DPST must be equipped with VHF equipment in the CCC, bridge and local station of the BLS, as well as portable devices for all crew members involved in the operation, including a VHF for a possible representative of PRIO.

7.2 ESTABLISHING THE COMMUNICATION

- **Initial contact**

When the DPST is appointed for an offloading operation on an FPSO, the DPST must make a contact with the FPSO informing its arrival forecast by email, 72, 48, 24 and 12 hours before arrival.

1	abloim@prio3.com.br
2	crudeops@prio3.com.br
3	ablmarinesupt@prio3.com.br

FPSO FORTE COMMUNICATION CHANNELS

STRONG call sign:	V7EF8	Phone (Radio Room)*	0021-870-776-425-512
MMSI Number:	538-001-793	Telex Sat. C	453 846 673
VHF channel:	Channels 16 and working channel 72	Phone (Radio Room)	00-55 22 2792-5057
Email	ablmarinesupt@prio3.com.br	Phone (Radio Room)	00-55 22 2792-5099

Contacts in Rio de Janeiro		
RIO Office PETRORIO	Commercial Operations Focal Point	+ 55 21 37212103 crudeops@prio3.com.br

Communication Protocol

At least two communication methods must be established and fully tested before each unloading operation, to ensure that continuous and effective communications can be maintained between the Offtake Tanker and the TERMINAL in case of failure of any equipment.

Upon arrival of the Offtake Tanker, the deck maneuver master must test the portable communication radios. During all unloading operations, a strict communication procedure must be followed. This requires the TERMINAL to verbally repeat all requests from the Tanker immediately upon receipt and proceed to inform the Tanker immediately that the requested action has been performed. The same procedure will

apply to the Offtake Tanker watch officer when information or actions are requested by the TERMINAL.

- **Working Channel:**

When reaching the 10 nautical mile zone, contact must be made between the DPST, the SUPPORT BOAT (if any) and the FPSO. A VHF channel will be referred to as the “working channel,” usually channel 72 VHF.

- **Communication via VHF**

Communication between the DPST, the SUPPORT BOAT (if any) and the FPSO using VHF must be done during the following phases:

- Approach
- Rigging
- Connection
- Loading
- Disconnect
- Output

7.3 NOTIFICATION OF READY TO OPERATE (NOR)

- The DPST ends navigation when it reaches the FPSO's 10 nautical mile zone.
- Once the DPST is ready to operate, it will issue the NOR and communicate it to the FPSO.
- The time NOR is received shall be noted in the appropriate report as “NOR communicated”.
- The communication must be made using the means of communication described above.

The Offtake Tanker Readiness Notice (NOR) will be accepted by the FPSO Marine Superintendent at the end of the DPST mooring. NOR will not be accepted during the

period when the Terminal is closed due to bad weather / force majeure or when the DPST arrives before the start of the days of stay in accordance with the current commercial agreement.

Notice of Readiness can be delivered at any time of the day or night to establish the vessel's arrival at the Laycan. However, for the purposes of commencement of stay, the NOR will be accepted under the above terms. Notwithstanding the preceding paragraph, in no event shall a Notice of Readiness, whether previously accepted or not, be valid or binding on the Terminal unless, and until, the Offtake Tanker itself, together with its tanks and equipment are in fact in all respects in good condition and the vessel operationally ready to receive the cargo indicated.

The DPST reaching the 10 nautical mile zone of the FPSO, and being ready to operate, informs the NOR to the FPSO.

7.4 TRANSFER OF INFORMATION

- **Before the operation:**

When within the 10 nautical mile zone, communication between those involved in the operation must be carried out on the designated working channel and must be limited to the information necessary for the operation, including:

- Information on the conditions of the mooring and hose system, SRP
- Information to be exchanged during the mooring operation.
- Start of offloading
- Exchange of information on loading/unloading (quantity pumped/received, flow and quantity to be loaded)
- Request and confirm the stop of the cargo pumps
- Exchange information during disconnection and unmooring
- Ready to exit
- Request permission to leave in the proposed direction

- **During the operation**

Communication between the units throughout the period of operation is vitally important for ensuring safe operation. It should be ensured that all technicians involved in the operation on board the DPST and the FPSO have correct understanding of the complexity and limitations of the vessel and the operation.

During operation, it is very important that the units are considered as a single system, rather than as isolated units (DPST and FPSO). In this way, joint efforts should be made to analyze the situation, and jointly make decisions.

- **Hourly Information Exchange:**

The information that must be exchanged during the operation, by the DPST and FPSO every hour, is described below:

INFORMATION	UNIT
Loaded quantity, flow rate and quantity to be loaded	DPST F(P)SO
Maximum voltage on hawser in the last hour	DPST

inform information exchanged between the DPST and the FPSO

7.5 OUTPUT

The DPST must inform the F(P)SO of its exit when it reaches the 10 nautical mile zone of the FPSO.

8. ARRIVAL AND DEPARTURE

8.1 MANEUVERING AREA

While maneuvering or navigating in an offshore operational area (Campos Basin), the DPST Commander must follow the guidelines below:

- The DPST shall maintain a minimum distance of 1 nautical mile from any offshore installation (IO), especially probes. To navigate or maneuver within this limit, the DPST must request authorization from the IO OIM **in advance**.

- DPST is not allowed to navigate or maneuver closer than 1 MN from any OI, especially probes. In the event of an unavoidable approach or maneuver within this prohibited area, the DPST shall request permission from the OIM or IO Commander stating the reasons and the nearest approach point (CPA).

NOTE: The OIM or IO Commander, when analyzing and making the decision to authorize the approach of the DPST within these safety limits, must be absolutely aware of the existence of any simultaneous operation that is underway in this area, as well as know the weather conditions.

8.2 DPST MANEUVER CONTINGENCY PLAN

The DPST must have contingency plans for emergency situations that may occur when operating with the FPSO. This procedure does not specify the internal organization and contingency/emergency procedures of the DPST, which should be available in the DPST operational manual and in the owner's rules and regulations.

Navigation plan for approach and departure:

All DPST arrival and departure navigation must follow the "passage plan" approved by the DPST Master. The DPST must be kept away from more than 1 MN from the IOs.

It is mandatory that the DPST when entering the offshore basin area has its main engine, generators, boiler, steering system, and auxiliary systems in full operation. The control of the main engine and thrusters shall be available from the gangway. Good communication must be ensured between the engine room and the walkway. The walkway and engine room must be permanently manned.

Emergency procedures

In case of total or partial failure in the main propulsion, generation or steering system or any other situation that puts safety at risk, the DPST Commander must immediately initiate the ship's emergency procedures and request assistance from a SUPPORT BOAT.

Emergency procedures must be performed taking into account the operational limits established in the document “Degraded State and Operational Limits”.

The nearest OIM or OI Commander must be informed immediately.

9. MOORING DECISION

Upon arrival of the DPST, the Marine Superintendent is responsible for ensuring that the DPST Master receives all necessary information regarding the weather conditions and operational status of the installation.

Complete the checklist contained in Annex 4 – SHIP/TERMINAL SAFETY CHECKLIST

This information should preferably be transmitted by email or via VHF Radio, including the following data:

- Quantity, temperature and specific weight of the load.
- The flow rate and duration expected to carry out the transfer of the cargo.
- Information on the operation of offloading stations, reference systems and mooring equipment.
- Range of FPSO movements.
- Name and position of AHTS, SUPPORT BOAT (if any).
- Guidelines for maneuvering with the mooring line and hose.
- Simultaneous activities with other vessels in the vicinity of the FPSO, reporting obstructions and restrictions.
- Weather conditions in the field including:
 - Wind strength and direction:
 - Significant wave height and period. o Wave (estimated wave height).
 - Visibility
- **Initial assessment**

The DPST Master and the Marine Superintendent will evaluate the above conditions and define the best approach for the bow offloading station.

When both parties agree that a safe mooring operation can be carried out, this phase will begin.

The DPST Master is always fully responsible for the safety of his vessel and must observe the “Environmental Limitations” section of this procedure to assist him in his decision.

- **Postpone or cancel:**

The DPST Commander has full authority to decide to postpone or cancel the approach and mooring operation at any stage of its maneuver, for operational safety reasons.

If this decision is made, the DPST Master shall inform all parties involved explaining the reasons for such decision and, if possible, estimate when the operation will resume.

10. PREPARATION FOR MOORING

10.1 PREPARATION FOR MOORING - FPSO

The following steps are required to prepare the FPSO for DPST mooring:

Step	ACTION
1	Prepare the auxiliary cables used for the hose and hawser
2	Prepare the pneumatic device, line launcher, in case it is not possible to receive the line from the DPST
3	Connect the messenger cable to the firing line

Preparation of FPSO for mooring

Note: Check the wind (direction and speed) before firing the line.

The DPST should preferably launch the line line, with the pneumatic launcher, in situations where the wind is unfavorable to the DPST, the FPSO will be able to launch the line and thus avoid an excessive approach to the DPST

10.2 PREPARATION FOR MOORING - DPST

The following steps are required to prepare the DPST for mooring the FPSO:

Step	ACTION
1	Prepare the auxiliary cables used to harvest the hose and hawser
2	Preparing the pneumatic line-throwing device
3	Connect the messenger cable to the firing line

Preparations in DPST:

- Make sure that the line launcher pneumatic device is ready for operation with the compressed air ampoule charged and the line held back long enough.
- Position the pneumatic launcher safely, avoiding any unsafe condition to its operator.



Pneumatic line launcher.

11. APPROACH PROCEDURE

11.1 APPROACH SPEED

The DPST will approach the FPSO with controlled speed as indicated in the table below. The table below specifies the maximum allowable approach speeds for the DPST.

Position	Maximum speed allowed
Within the <i>limits of 10 NM from FPSO</i>	Maximum speed according to COLREG. (<i>Maximum speed allowed by COLREG</i>)
At 3 NM from FPSO (<i>Within the limits of 3 NM from FPSO</i>)	5 knots
3000 m from the FPSO (<i>Within the limits of 3000 meters from FPSO</i>)	3 knots
1500 m from FPSO (<i>Within the limits of 1500 meters from FPSO</i>)	2 knots
500 m from FPSO (<i>Within the limits of 500 meters from FPSO</i>)	1.0 knots
300 m from the FPSO (<i>Within the limits of 300 meters from FPSO</i>)	0.6 knots
200 m from FPSO (<i>Within the limits of 200 meters from FPSO</i>)	0.4 knots

Maximum permissible approach speeds for DPST

11.2 DP SYSTEM TESTING

The DP system consists of several subsystems connected and controlled by computers. It is vital that the function of this assembly is checked and inspected at regular intervals, following a maintenance schedule.

The DPST and FPSO must develop their offloading execution procedures contemplating checklists to be performed before arrival, as well as the records of the tests and stages of the operation from arrival to departure.

All checklists must be properly dated and signed.

Verification of positioning capacity:

Before approaching the 500-meter zone of the FPSO, the DPST must perform the procedure for checking the DP system and confirm the positioning capacity. The test should be performed for a period of at least 15 minutes without interference. Approval of the DP mode test to maintain positioning must be approved by the DPST Master and the test result must be informed to the FPSO.

11.3 DPST OPERATING MODES

- **“Taut hawser mode”:** keeps the DPST in position, acting manually, through the DP system (preferable) or through the manual control of its thrusters, observing and controlling the position of the DPST and maintaining the traction of the mooring cable (Hawser) “manually” with tension around 20 ton, according to the intensity and direction of the environmental forces. This operating mode should be used in special cases, when none of the relative positioning reference systems are available or occasionally during offloading, in case of unfavorable MetOcean conditions.
- **“Auto-pos – absolute mode”:** the DPST maintains position using the shuttle's Absolute Positioning Reference Systems (DGPSs).
- **“Auto-pos – relative mode”:** DPST maintains position using the relative positioning reference system DARPS, Fanbeam or Artemis. The reference is given by the FPSO unloading point.
- **“Approach mode”:** operating mode used for approaching or departing the FPSO in a range of 1000 m, controlling the position “step by step”.]

11.4 POSITION REFERENCE SYSTEM (SRP)

As a general rule, there must be a minimum of 3 (three) Positioning Reference Systems (SRP) installed.

For operation in “Full DP” mode, at least 2 (two) relative SRPs must be operational and in use during offloading operations and the FPSO set-up in the DPST software must be updated. In case of unavailability or failure of any SRP during the offloading operation, the DPST Commander in accordance with the

Marine Superintendent, must follow the guidelines established in the “Degraded State and Operational Limits”.

- **Use of absolute and relative SRP in offloading operations:**

The combination of using absolute and relative systems must be defined based on the DP system software and the recommendations and best practices defined by the Kongsberg manufacturer and confirmed in internationally recognized simulator training centers.

11.5 APPROACH PROCESS

Below is the DPST approach process:

Distance	Step	Responsible	Action
30 nm	1	ST	Steering mechanism, propulsion systems, communication equipment, mooring and loading systems must be checked according to the internal procedures of the DPST.
		DPST	1. Contact the F(P)SO to advise the

Distance	Step	Responsible	Action
20 nm	2	F(P)SO F(P)SO	following: <ul style="list-style-type: none"> • Inform ET A to the designated field; • Inform the last port of call and the position of the vessel; • Available cargo space, water and sludge; • Operational restrictions, if any. Contact the DPST on channel 16 and agree on a channel to be assigned as service channel during the operations.
		F(P)SO	3. Inform the DPST Captain of the following information: <ul style="list-style-type: none"> • Vessel approach route; • Weather conditions; • Estimated time to start the operation; • Possible obstructions that could pose a danger to safe navigation; • Name of the SBV (if any); • Any other relevant information;
		F(P)SO	4. Check with the SBV (if any) its operational status Inform the SBV about the designated

Distance	Step	Responsible	Action
		F(P)SO	<p>service channel.</p> <p>5. Inform the DPST Captain of the following information:</p> <ul style="list-style-type: none"> • Status of the stick line; • quantity, temperature and density (at 20°C) of the oil that will be discharged to the ST; • BSW - Bulk sediments and water - Amount of sludge and water in the oil, given in percentage terms; • Estimated unloading rate (m³/h); • Operational restrictions, if any. <p>6. Begin preparing your mooring and unloading systems for operation in accordance with your internal procedures.</p>
10 Nm	3	DPST	<p>1. Contact F(P)SO informing that it is ready to start operating.</p> <p>2. Issue the Notice of Compliance (nor).</p> <p>3. Verify that the crew, systems and all resources required for safe operation are ready</p>

Distance	Step	Responsible	Action
			according to internal procedures.
		DPST	4. Ask F(P)SO for permission to proceed up to the distance of 3 nm.
		F(P)SO	5. Grant Permission.
3.0 NM	4	DPST	1. Maximum approach speed 5 knots.
		DPST	2. Request F(P)SO permission to proceed up to the distance of 3000 meters.
		F(P)SO	3. Grant permission
3000 m	5	DPST	1. Maximum approach speed 3 knots.
		DPST	2. Request the following information from F(P)SO 3S: <ul style="list-style-type: none"> • F(P)SO heading; • Wind (direction and speed); • Current (direction and speed).
		DPST	3. Compare the wind direction and speed data received from F(P)SO

Distance	Step	Responsible	Action
		DPST (If any) (If any) DPST F(P)SO	with your own information. 4. Prepare the 3 emergency towing arrangement in accordance with section 19 of this Manual 5. Monitor the DPST near its stern during the approach operation ready to be connected, if a special situation occurs 6. Request permission from the F(P)SO to proceed to a distance of 1500 meters. 7. Grant permission
0 – 1500 m	6	DPST DPST DPST DPST F(P)SO	1. Maximum approach speed 2 knots. 2. Inform F(P)SO when it reaches the 1500 meter mark. 3. Select Position Reference Systems. Request F (P) SO permission to proceed to the distance of 500 meters.

Distance	Step	Responsible	Action
			5. Grant permission.
500 m	7	DPST	1. Inform F(P)SO when it reaches the 500 meter mark. Maximum speed in this position should be 1.0 knot.
		DPST	2. Refer to section 11.2 - DP Tests "
		DPST F(P)SO	3. Request F(P)SO permission to proceed up to the distance of 300 meters. 4. Grant the Permission
300 m	8	DPST	1. Inform F(P)SO when it reaches the 300 meter mark. Maximum speed in this position should be 0.4 knot.
		DPST F(P)SO	2. Ask the F(P)SO for permission to proceed 3 up to a distance of 200 meters 3. Grant permission
200 M	9	DPST DPST	1. Inform F(P)SO when it reaches the 200 meter mark. Maximum speed in this position should be 0.4 knot. 2. Request F(P)SO permission to proceed up to the distance of

Distance	Step	Responsible	Action
		F(P)SO	140 meters. 3. Grant 3 permission.
140 m	10	DPST	Inform the F (P) SO when the 140-meter mark is reached. Vessel to be stopped in this position.

APPROACH DIRECTION

During the approach, the DPST must maintain a distance of (01) nautical mile from other units. If, for any reason, the DPST enters the (01) nautical mile zone, the DPST must contact the unit requesting permission.

Under no circumstances should the DPST approach directly towards the FPSO. During approach, the “Closest Approach Point” (CPA) to another FPSO, Drilling Rig or other vessel operating in the area should never be less than 500 m, if this occurs operational risks should be analyzed.

- **Reduced visibility:**

If visibility is less than 1000 m in the FPSO approach area, the DPST Master, SUPPORT BOAT, if any, and FPSO must jointly assess and agree on safety conditions.

The DPST Master should maneuver his vessel in accordance with operational procedures and limitations, reduce speed as necessary, observe all maritime activities in the area and man the relevant vessel stations appropriately for subsequent operations.

REMEMBER: During the final approach to the FPSO, the DPST must consider the wind and current, be attentive to the resulting counter force. The DPST must

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maneuver with extreme care when approaching the 250 m zone of the FPSO, paying special attention to the port side of the STRONG FPSO, where the unit risers are fixed.

12. TRANSFER OF THE MESSENGER CABLE

The messenger cable can be transferred in two ways. The DPST Master and Marine Superintendent will combine the method to be used and this must be recorded in the appropriate checklist. The methods of

transfer are:

“Primary” Method:

STEP	ACTION
1	DPST positions itself using approach mode – DP
2	The DPST approaches the FPSO and stops when it is 80 meters away
3	The DPST fires the line directly to the FPSO using a compressed air gun
4	Mooring operation is performed while DPST remains in this position

Messenger cable transfer – primary method

NOTE: The DPST Master informs about the distance that it will be necessary to approach in order to carry out a safe line transfer trip operation. Weather conditions must be taken into account.

“Secondary” method:

STEP	ACTION
1	DPST positions itself using approach mode – DP
2	The DPST approaches the F(P)SO and stops when it is 80 meters away
3	The FPSO fires the line directly to the DPST using a compressed air gun
4	Mooring operation is performed while DPST remains in this position

Messenger cable transfer – secondary method

NOTE: the DPST Master must decide what is the approach distance that will be necessary in order to carry out a safe line transfer firing operation. Weather conditions must be taken into account.

WARNING: The “primary” method will be the preferred method. The FPSO and DPST deck crew must be ready for maneuvering at the Offloading station.

13. MOORING CABLE AND HOSE CONNECTION

13.1 MESSENGER CABLE TRANSFER

The messenger cable is transferred from the FPSO to the DPST using the combined method between Marine Superintendent and the DPST Master according to “Messenger Cable Transfer”, previous section. The mooring line and hose are then connected as detailed. Complete the mooring maneuver checklist in Annex 3 - CHECK LIST BEFORE MOORING.

13.2 MOORING CABLE CONNECTION PROCESS

- **“Primary” method – DPST firing the line:**

Every step by step is explained in the arrangement contained in Annex 1 - Annex 1 - Mooring and Hose connection steps.

The following table describes the mooring cable connection process:

Item	Distance	Responsible	Description
1	120 m	DPST	Ask F(P)SO for permission to proceed up to the distance of 100 meters.
2	120 m	F(P)SO	Grant permission.
3	100 m	DPST	Inform the F (P) SO when the 140-meter mark is reached. Vessel to be stopped in this position.
4	100 m	F(P)SO	Inform the DPST that it is ready to receive the firing line.
5	100 m	DPST	Fire the line using the air gun.
6	130 M	F(P)SO	Receive the messenger cable and connect it to the first messenger cable.

Item	Distance	Responsible	Description
7	130 M	F(P)SO	According to the request of the DPST. start to download the messengers and the mooring line.
8	130 M	F(P)SO	Connect the unloading hose system messenger line to the pin on the last link of the 3"chain on the chain stopper using a strap.
9	130 M	F(P)SO	Completely download the messenger for the mooring system, the mooring rope and the cable unloading hose system messenger. Secure the mooring system to the locking mechanism.
10	130 M	DPST	Fully collect the first and second messenger cable until the chain stopper is on the chain jaw.
11	130 M	DPST	Once positioned in the chain clamp on board the DPST. the stop is locked.
12	130 M	DPST	The second messenger cable is then disconnected from the chain stopper.
13	130 M	DPST	Inform F(P)SO that the vessel is moored and ready to start picking up the messenger cable from the unloading hose system

Mooring cable connection process – Primary method

13.3 OFFLOADING HOSE LINE CONNECTION PROCESS

Every step by step is explained in the arrangement contained in Annex 1 - Annex 1 - Mooring and Hose connection steps.

The following table describes the process of connecting the unloading hose:

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Item	Distance	Responsible	Description
1	130 M	DPST	Start collecting the messenger cable from the unloading system. Request the F(P)SO to begin lowering the hose line.
2	130 M	F(P)SO	According to the request of the DPST. start releasing the hose line.
3	130 M	F(P)SO	Instruct the DPST on the speed to be used when picking up the messenger cable from the unloading system
4	130 M	F(P)SO	In order to have a good position for connecting the hose to the coupling valve, ask the DPST to stop retracting.
5	130 M	DPST	Stop picking up the unloading system messenger cable as instructed by F(P)SO. Wait for instructions.
6	130 M	F(P)SO	Completely lower the hose line and connect it to the coupling valve. Inform the DPST that the hose line is connected and ask the DPST to start collecting the messenger cable from the unloading system
7	130 M	DPST	Start collecting the messenger cable from the unloading system until the guide mark is aligned.
8	130 M	DPST	Connect the hose line according to internal procedures.
9	130 M	DPST	Inform F(P)SO that the hose line is connected
10	130 M	DPST	Ask the F(P)SO for permission to proceed to a distance of 150 meters.

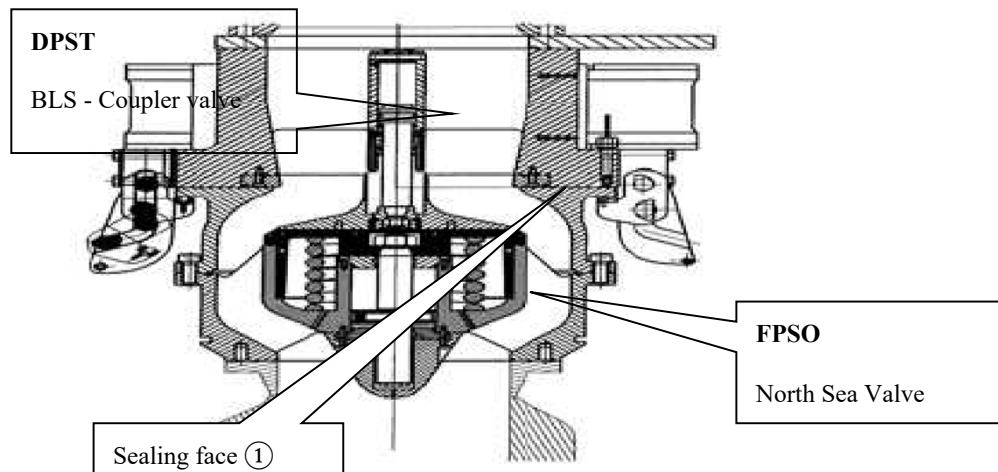
INTERNSHIP	Distance	Responsible	Description
11	130 M	DPST	Grant permission.
12	150 m	DPST	Inform the F(P)SO when reaching the 150 meter mark.
13	150 m	DPST	Disconnect the messenger cable from the hose control unloading system.
14	150 m	DPST	Select the 'weather vane' mode in the DP system
15	150 m	DPST	Prepare the vessel to start loading according to internal procedures See the section referring to the "Green Line".
16	150 m	DPST	Inform F(P)SO when ready to start loading.

Unloading hose connection process

Note: the hose line cap must be disconnected from the hose after completing the hose connection, in order to allow the immediate release of the hose in an OESD 2 condition.

13.4 BLS CONNECTION INTEGRITY TEST

Immediately after connecting the offloading hose to the BLS, and before starting the pumping operation, the integrity test of the connection between the NSV (North Sea Valve) and the BLS will be carried out, in order to verify the perfect sealing, as per described:



BLS and North Sea Valve connection.

- The DPST will open the “coupler valve” and close the valve immediately after, so that the execution of the test is limited to the pipe section of the DPST bow (BLS area).
- The hose line must be pressurized by the FPSO with a pressure of 07 bar for 10 minutes.
- During this period the DPST will confirm that there is no leakage in the connection.
- If any leakage is noticed, the integrity test must be interrupted and corrective actions implemented, and at the end a new test must be performed.
- At the end of the test, the DPST will confirm the integrity of the connection to the FPSO, and the FPSO will depressurize the line.

NOTE:

- 1- The pressure test to verify the integrity of the hose must be part of its inspection plan, following the international standard established in OCIMF (Guidelines for the handling, storage, inspection, and testing of hoses in the Field).
- 2- The connection integrity test is intended to test the sealing of the NSV with the BLS and is not a hose integrity test or an operational pressure test. The maximum pumping pressure is limited to the value recorded in the last hose integrity test.

14. UNLOADING OPERATION

This section describes the requirements to start, perform and complete the DP mode offloading operation.

14.1 COMMENCEMENT OF TRANSFER

- **Start:**

- Sealing test of the hose connection to the BLS - after connecting the hose to the BLS, the connection integrity test as defined above must be performed. Test results will be recorded.
- The start of loading will take place at reduced flow and pressure for the DPST and FPSO to check their systems. Subsequently, the flow rate will be increased to the nominal condition, previously agreed between the parties, if there is no restriction.
- The DPST will load as provided for in the "cargo plan".

- **Monitoring:**

- DPST - the BLS bow station will be manned throughout the operation, and the loading will be controlled from the CCR and monitored or operated by the bridge.
- FPSO - the offloading station on the bow or stern and the control stations of the FPSO will be manned during unloading operations to enable strict control and visual verification in the unloading operation.
- Bridge Crew - The DPST Master is responsible for a safe surveillance of the DP system throughout the operation and will ensure that it is carried out, in all aspects, in a safe and professional manner and without risks to personnel, equipment and the environment. During the transit of the DPST within the field area, the connection/disconnection/loading and departure from the loading position and every time the ship is operating in DP, the bridge will be manned by at least 1 (one) Senior Nautical Officer and 1 (one) Junior Nautical Officer. One of the above-mentioned Nautical Officers must have a DP Operator Certificate issued by the

Nautical Institute, valid and corresponding to class DP I / II, and the other nautical officer must have completed at least the Basic DP Operator course.

- Load control center – must be manned throughout the operation by a Nautical Officer. On vessels that have a Cargo Control Station on the bridge, one of the Bridge Officers can control the loading operation.
- Engine room - during the operation of maneuvering or loading in production areas, the engine control room must be properly manned by qualified and competent Officers and crew and capable of correcting any malfunction or defect in the propulsion and power system.

14.2 TANK LOADING AND VERIFICATION SEQUENCE

- **Sequence:** The DPST must inform the tank loading sequence before starting the pumping.
- **Quantity check:** During loading, the quantity received by the DPST must be compared every hour with the quantity unloaded from the FPSO. In case large discrepancies arise, the unloading operation must be suspended, and all systems checked for leaks.
- **Loading flow:** near the end of loading or when the "TOP" of the cargo tank the DPST will request the reduction of the flow to the FPSO must promptly:

- Reduce the pumping flow or the number of pumps in operation to meet the requested flow.

- Stay alert and prepare to stop charging immediately.

14.3 TERMINATION OF TRANSFER

- The pumping stop will be agreed at the beginning of the operation, whether by the FPSO or by the DPST, depending on the conditions stipulated by the contract. The conditions will be passed by the competent sector of PRIO, prior to the start of the operation.
- After completing 85% of the unloading operation, oil samples will be prepared for sending to the DPST, the exchange will be carried out through a

messenger cable interconnected to the DPST-FPSO at the Offloading station. Sample transfer maneuver will be coordinated by FPSO and DPST Deck teams.

15. HOSE LINE DISPLACEMENT

Based on the assumption that the main objective is to displace the remaining oil in the hose line, filling it with salt water, we will adopt the nomenclature “displacement of oil in hoses” instead of “washing hoses”.

FPSO hoses oil displacement procedure:

1) General recommendations:

- The volume of water intended for the displacement of the oil from the hose line must be equivalent to its internal volume, plus 10% (margin) in order to guarantee the full displacement of the oil.
- Any flow restrictions must be evaluated by the DPST and FPSO so that the system operates within adequate pressure and flow values.

2) Hose line oil displacement:

- The volume to be moved must be equal to the total volume of the hose line with a margin of +10%;
- The line displacement may be in the DPST-FPSO or FPSO-DPST direction, depending on what is agreed in a commercial contract. PRIO's responsible sector will align this information to the FPSO and DPST before the start of the operation. If the displacement is made from the DPST-FPSO, the DPST must separate a slop to receive the initial flushing water to be pumped back to the FPSO at the end of the operation.

On the part of the DPST:

1. Whenever you approach an Ocean Terminal to perform a relief operation, you must have space in your "slop" to receive the volume of the hose line, around 200 m³.
2. After completing the connection integrity test, the DPST must align the loading to the "slop" and receive the volume of 200 m³ of water.
3. After the displacement of the stipulated volume, align the loading to the cargo tanks and receive the scheduled load.
4. At the end of loading, return the volume received in the "slop" to the FPSO.

By the FPSO:

1. Take the connection integrity test.
2. Start displacing 200 m³ of water with low flow in the pump until this volume has been transferred.
3. Confirm with the DPST its alignment for the cargo tanks.
4. Start oil transfer with the pump at the operating flow rate combined with the DPST.
5. At the end of the scheduled transfer, align the charging system to receive the oil displacement volume for its "dirty slop" from the DPST.

16. HOSE AND MOORING CABLE DISCONNECTION**16.1 PREPARE FOR DISCONNECTION**

Before initiating the disconnection, the DPST Master and Marine Superintendent must carefully assess wave, wind and current conditions. If necessary, the position and heading of the DPST should be optimized.

Note: The DPST may perform OESD 2 if it is unable to maintain the position or as a result of an emergency. In this situation, the whole set, hose, and hawser, will be let go immediately.

16.2 HOSE DISCONNECTION

- **DPST procedure:**

DPST will prepare to disconnect after having received confirmation that all valves on the FPSO are closed.

The following steps are required for DPST to disconnect:

- 1- Connect the hose messenger line.
- 2- Confirm communication between bridge and BLS station.
- 3- When the messenger line is being heaved, bow personnel must be aware of any problems and must keep themselves protected from a possible accident.
- 4- Tension the messenger line.

F(P)SO procedure:

When it confirms that all valves on the two vessels have been closed, the FPSO activates the hydraulic system to recover the Offload hose.

Disconnect

During the disconnection operation, the DPST and FPSO must observe any possible oil leakage at sea. Any oil spill observed must be reported immediately to the FPSO, which must take the appropriate contingency measures, in accordance with the general contingency plan.

The DPST will inform the FPSO when the vessel is ready to disconnect.

Every step by step is explained in the arrangement contained in Annex 2 - Unmooring and Hose disconnection steps.

The following table describes the stages for disconnection of the offloading hose line which will occur when both vessels confirm that they are ready to maneuver.

Item	Person in charge	Description
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01	DPST	Inform the FPSO and SBV (if any) that it is ready to disconnect the hose line. Request permission to disconnect.
02	FPSO	Grant permission
03	DPST	Disconnect hose line per internal procedures. Prepare to begin lowering the hose line.
04	DPST	Inform the FPSO that the hose line is disconnected.
05	FPSO	Start picking up the hose line. Instruct the DPST on the speed to be used when lowering the hose line.
06	DPST	Start lowering the hose line.
07	FPSO	Inform the DPST that the hose line is all on board and secured.
08	DPST	Collect the messenger cable from the hose.

Unloading hose disconnection procedures

16.3 DISCONNECTION OF MOORING LINE

The mooring cable can be disconnected after disconnecting the hose and when both vessels confirm that they are ready for the maneuver.

Every step by step is explained in the arrangement in Annex 2 - Unmooring and Hose disconnection steps.

The following steps are required to disconnect the mooring line:

Item	Distance	Person in charge	Description
1	150 m	DPST	Connect the messenger cable to the end of the rope
2	150 m	DPST	Remove the messenger cable.
3	150 m	DPST	Ask the FPSO for permission to proceed to the distance of 140 meters to start disconnecting.
4	150 m	FPSO	Grant permission.

5	140 m	DPST	Inform the FPSO when reaching the 140 meter mark.
6	140 m	DPST	Ask the FPSO for permission to start disconnecting the mooring system.
7	140 m	FPSO	Grant permission.
8	140 m	DPST	Open the chain jaw and start lowering the mooring system.
9	140 m	DPST	Inform the FPSO and the SBV (if any) that it is untied.
10		DPST	Begin moving astern while lowering the chain and tie line.
11		FPSO	Start picking up the messenger line from the unloading system and the mooring line right after the chain leaves the bow of the DPST.
12		DPST	Inform the FPSO when the tip of the messenger cable is thrown overboard.
13		FPSO	Inform the DPST that the messenger cable is attached to the deck.

Procedures for disconnecting the mooring line

WARNING: Excessive slack in the lines must be avoided during the disconnection process.

17. DEPARTURE

WARNING: The DPST must inform the FPSO of the exit time of the 500 m zone, and the official exit time at 10 NM from the Strong Terminal.

POSITION: The DPST, in manual or automatic DP position mode, can adjust its position relative to the stern/bow of the FPSO to reach the ideal position for unmooring (keeping to leeward).

DIRECTION: When the hawser jaw is released, the DPST will be taken astern in a straight line. For this, the sea conditions and the direction of departure must be analyzed. The DPST must stay away from the FPSO after it is released.

SPEED: While moving aft of the mooring position, the DPST must maintain a speed in accordance with the dropping speed of the messenger cable and the catenary of the messenger cable remaining in the water. Once all lines are out and the DPST is ready to go, the speed within 1000 m should be 3 knots.

18. RELEASE

Once the DPST is at a safe distance from the FPSO, you can disconnect the aft AHTS if you participate in the operation. The loading documents, once ready, will be sent by email. The final release of the DPST will be authorized by the FPSO Marine Superintendent. After the DPST is released, maneuver to safely move away from the FPSO.

19. COMPLIANCE WITH SAFETY REGULATIONS / GUIDELINES

Offtake Tankers shall comply with all applicable federal, state and local laws and regulations, including but not limited to those relating to safety, navigation, operating standards and environmental protection. The Offtake Tanker and crew are subject to inspection and clearance by customs, immigration, Navy and health authorities. The local port authority may also request an inspection of the Offtake Tanker.

The Offtake Tanker shall comply with:

MARPOL 73/78 - International Convention for the Prevention of Pollution from Ships,

- SOLAS (International Convention for the Safety of Life at Sea 1974/88)
- ISM Code of International Safety Management
- Oil Company International Maritime Forum (OCIMF) standards and procedures, including the International Safety Guide for Tankers and Terminals (ISGOTT), Marine Terminal Research Guides and Ship-to-Ship Transfer Guide of the International Chamber of Shipping/OCIMF (Oil).

Any offtake tanker deemed deficient or substandard in any safety requirements shall be denied permission to berth or load or be removed from the quay if such safety deficiency becomes apparent to the FPSO during loading.

During loading operations, the Offtake Tanker's HF/MF radio antenna must be grounded in accordance with ISGOTT requirements. If the Offtake Tanker Master has reason to contact the shore, he must call through the Offtake Tanker marine satellite link or pass his message through PRIO's communications network, as the case may be.

RESPONSIBILITY FOR THE SAFE CONDUCT OF OPERATIONS

Responsibility for safely conducting operations on board the Offtake Tanker, while berthed at the Terminal, rests with the Offtake Tanker Master. However, since personnel, property and other vessels may suffer serious damage in the event of an accident, there should be full cooperation and understanding of the safety requirements set out in the Pre-Tanker/Terminal Transfer checklist.

The FPSO OIM reserves the right, in case of continuous or flagrant disregard of these safety requirements, to stop all operations and order the Offtake Tanker to leave the berth, pending the appropriate action to be taken by the Shipowners and/or or Vessel Owners.

SAFETY NORMS

Nothing in these regulations shall relieve tanker masters of their responsibility to observe normal safety, fire prevention and safety precautions. The Marine Superintendent is authorized to advise and request Offtake Tanker Masters to take additional measures to ensure safe operations should circumstances so require. The Marine Superintendent is also authorized to suspend oil transfer operations in case of violation of safety regulations or if any other dangerous situation is encountered.

The following safety regulations have been developed in an effort to reduce the possibility of an incident involving fire, explosion or other hazard.

SECURITY REQUIREMENTS

Offtake Tanker Masters will receive the Offload Manual, Regulations and Conditions of Use of the FORTE Terminal before the start of mooring operations. The Offtake Tanker Master is required to sign for acknowledgement and receipt. Refer to Annex 8. This

booklet is also provided to the master during the verification process as part of the pre-arrival questionnaire.

It is the right and responsibility of the PRIO Representative, if boarding the DPST, to carry out periodic inspections on board the supply tankers in relation to any violation of the Terminal Safety and Fire Regulations. To this end, the PRIO Representative must have free access to all parts of the Offtake Tanker at all times, accompanied by a responsible ship's officer to assist him in carrying out such inspections.

Ship / Shore Safety Check List

Upon completion of berthing and prior to commencement of Petroleum Transfer Operations, the FORTE Tanker/Terminal Checklist must be completed following inspection by a responsible Deck Officer. The Offtake Tanker / Terminal checklist is based on the recommendations of the International Safety Guide for Oil Tankers and Terminal (ISGOTT).

COMPLIANCE WITH REGULATIONS / SAFETY GUIDELINES

Offtake Tankers shall conform to all applicable Brazilian federal, state and local laws and regulations, including but not limited to those related to safety, navigation, operation standards and protection of the environment. The Offtake Tanker and crew are subject to inspection and clearance by Customs, immigration, Navy, and health authorities. The local port authority may also request to carry out an inspection on the Offtake Tanker.

The Offtake Tanker shall comply with:

- MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships)
- SOLAS (International Convention for the Safety of Life at Sea 1974/88)
- International Safety Management ISM code

- Oil Company International Marine Forum (OCIMF) standards and procedures, including International Safety Guide for Oil Tankers and Terminals (ISGOTT), Marine Terminal Survey Guides and International Chamber of Shipping/OCIMF Ship to Ship Transfer Guide (Petroleum).

Any Offtake Tanker found to be deficient or substandard in any safety requirements shall be refused permission to moor or load or removed from berth if such safety deficiency becomes evident to the FPSO during loading.

During loading operations, the Offtake Tanker's HF/MF radio antenna shall be grounded in accordance with the requirements of ISGOTT. If the Master of the Offtake Tanker has reason to contact the shore, he should call via the Offtake Tanker's marine satellite link or pass his message through the PRIO communications network as appropriate.

RESPONSIBILITY FOR SAFE CONDUCT OF OPERATIONS

Responsibility for the safe conduct of operations on board the Offtake Tanker, while moored at the Terminal, rests with the Offtake Tanker Master. Nevertheless, since personnel, property and other shipping may suffer serious damage in the event of an accident, there must be full cooperation and understanding on the safety requirements set in the Offtake Tanker / Terminal Pre-transfer checklist.

The FPSO OIM reserves the right, in the event of continued or flagrant disregard of these safety requirements, to stop all operations and order the Offtake Tanker out of the mooring, pending appropriate action to be taken by the Vessel's Charterers and/or Owners.

SAFETY REGULATIONS

Nothing in these regulations will relieve Offtake Tanker Masters of their responsibility in observing the normal safety, fire prevention and security precautions. Marine Superintendent is authorized to advise and request Offtake Tanker Masters to take

additional measures to ensure safe operations should circumstances so require. Marine Superintendent is also authorized to suspend oil transfer operations in the event of an infringement of safety regulations or if any other hazardous situation is encountered.

The following safety regulations have been developed in an effort to reduce the possibility of an incident involving fire, explosion or other hazard.

SAFETY REQUIREMENTS

Offtake Tanker Masters will be provided the STRONG Terminal Information, Regulations and Conditions of use Booklet prior to commencement of berthing operations. The Offtake Tanker Master is required to sign for acknowledgement and receipt. See Attachment #8. This booklet is also provided to master during vetting process, as part of pre-arrival questionnaire.

It is the right and the responsibility of the OWN Rep., if embarks on DPST, to make periodic inspections on board Offtake Tankers in respect of any breach of the Terminal Safety and Fire Regulations. For this purpose, the OWN Rep. shall always be allowed free access to all parts of the Offtake Tanker, accompanied by a responsible ship's Officer to assist him in carrying out such inspections.

SHIP/SHORE SAFETY CHECK LIST

On completion of berthing and prior to commencement of Oil Transfer Operations, the Offtake Tanker / FORTE Terminal Check List shall be completed following an inspection by a responsible deck officer. The FORTE Offtake Tanker / FORTE Terminal Check List is based on the recommendations of the "International Safety Guide for Oil Tankers and Terminal" (ISGOTT).

20. EMERGENCY GUIDELINES

1. Emergency Guidelines

This section contains emergency guidelines for disconnecting the Reliever in the event of an emergency. The emergency guidelines listed below should be used if an emergency occurs, such as:

- Mooring line failure or defect
- Failure or defect in the charging hose
- AHTS engine breakdown (if participating in the operation)
- Collision between Reliever and FPSO

If any potential risk occurs, the FPSO Manager and the Offtake Tanker Master should consider the following actions:

- Stop charging but remain docked with hose connected
- Stop charging but remain docked with hose disconnected
- Stop loading and disconnect the hose and mooring cable and move away from the FPSO.

2. EMERGENCY STOP PROCEDURES IN OIL TRANSFER

Manual communication initiating an emergency stop of the FPSO Central Control Room oil transfer shall be tested prior to commencement of offloading operations. If initiated from the FPSO, the Central Control Room must inform the Mooring Master of the emergency.

- FPSO systems shall automatically shut down the pumps with the designated flow control.
- The DPST BLS valve must be closed as soon as the FPSO pumps are stopped.
- The Control Center operator closes the FPSO valves. Depending on the scale of the emergency, the Reliever should be instructed to disconnect the hose and then the mooring line.

3. CONTINGENCIES ON BOARD

The Reliever Commanders must have contingency plans prepared for emergency situations that may occur in the vicinity of the Albacora Leste Field. These must be fully documented and available to PRIO. This Offtake Tanker Manual shall not cover

the internal organization of the Tanker or procedures for dealing with contingencies / emergencies as they are part of the Tanker operations manual and owner regulations. In all cases of emergency on board, the Offtake Tanker Masters are required to notify the FPSO FORTE TERMINAL immediately in addition to meeting the requirements of the Offtake Tanker Owner.

Masters may request any assistance that may be offered by the TERMINAL. If the Tanker is adrift without engine, without rudder, and there is the least chance of the Tanker drifting near an oil field structure without AHTS connected, the AHTS shall be called immediately to tow. The AHTS shall have a bollard pull greater than 110 tons and every effort shall be made to avoid a collision between the Tanker and any oil field structure. The foregoing should not be construed as overruling the Offtake Tanker owner's instructions to Masters to seek assistance in emergencies. PRIO shall provide towing assistance as required for "third party" vessels within the location of the Albacora Leste Field to protect field assets and this postponement of assistance shall not be unnecessarily withheld.

4. FIRE IN THE TERMINAL OR IN THE OFFTAKE TANKER

In the event of a fire in the TERMINAL or the Tanker, the emergency stop must be activated IMMEDIATELY and confirmation from the parties must be obtained that all cargo transfer operations have been terminated and the cargo system shut down. This action should be followed by releasing the hose cable and untying.

5. POWER OUTAGE IN FPSO, RELIEVER OR AHTS

A total blackout of the FPSO will cause the stoppage of cargo transfer operations. Instructions must be provided by the FPSO on the status and whether it is necessary to disconnect the hose and safety cable.

A total blackout on the Tanker with total loss of the main engine and auxiliary power results in the closure of the Tanker and possible collision with the TERMINAL. In case it is not connected to an AHTS, it must be requested immediately, in order to maintain the position and direction of the vessel.

If the time required to exit the total blackout condition on the Tanker is relatively short, the hose does not need to be disconnected. However, as in all emergency

situations, the cargo transfer must be interrupted and the TERMINAL alerted. The answer to this scenario should be as soon as possible. If the Tanker drifts up the FPSO, due to the lack of DP machine, the scenario in the FPSO of a possible and imminent collision will be adopted, if it does not have support from an AHTS immediately, to tow the Offtake Tanker vessel.

In these cases, the Ship must disconnect the hose and unmoor in emergency, immediately.

With the arrival and connection of an AHTS, the Vessel can be towed. Before deciding on this course of action, the Offtake Tanker Master and Marine Superintendent must give due consideration to the imminent collision risk.

A total blackout on the AHTS, which is being used in the operation, with total loss of main engine power shall not result in collision of the AHTS or the Tanker with the TERMINAL or with each other. This scenario must be evaluated, because if the DPST vessel is unable to maintain its positioning, it must immediately inform and initiate a disconnection and unmooring procedure.

6. FAILURES IN STRINGS AND HOSE

High tension in the mooring line can suddenly break. If this occurs or the tension of the tether exceeds 100 tons, an alarm is triggered in the Central Control Room. The failure of the mooring cable does not allow a choice of action, and the Reliever must disconnect the hose and immediately exit the TERMINAL. The time elapsed between a cable failure and a tension in the oil transfer hose is probably short and can reach only a few minutes.

The Offtake Tanker shall assume a standby position outside the 500 meter exclusion zone.

The FPSO will recover the hose and messenger ropes. Planning will be made to replace the mooring hawser, in order to resume the system's operability.

Hose failure or rupture can constitute a pollution event. The Offtake Tanker must disconnect the hose and prepare for the hawser to be disconnected.

7. POLLUTION

7.1 OIL LEAK ORIGINATED IN THE TANKER

In the event of an oil spill on board the Tanker, the immediate response must be given in accordance with the Tanker's SOPEP. All cargo transfer must cease regardless of the cause of the leak and FPSO FORTE Terminal Offshore Installation Manager must be immediately informed. Every effort should be made to prevent the spill from going into the sea.

In the event of an overboard oil spill from or caused by the Offtake Tanker, FPSO FORTE Terminal Offshore Installation Manager will assume command of oil spill contingency and cleaning activities. PRIO Incident Command must be informed immediately. Notwithstanding the foregoing, the owners of the Tanker shall assume full responsibility, including financially, for any oil spill.

Under no circumstances should dispersant be used without authorization from PRIO Incident Command. AHTS has oil spill response capability and can assist in the event of oil spill overboard as instructed by the Terminal Offshore Installation Manager.

Any first response provided by the Terminal, the AHTS and other associated resources, whether conducted independently or directed by the Commander of the Reliever, will not release the Reliever owners from their liability.

7.2 LEAKAGE OF OIL ORIGINATING OUTSIDE THE TANKER

The oil slick observer must immediately inform the FPSO Marine Department, providing data that will allow the evaluation of its origin, extent of the accident (approximate size of the oil slick, direction of travel, wind and current).

8. Communication failure

In the event of a total failure of radio communications, all berthing/unberthing and loading operations must be suspended until normal communications are restored.

Communication failure must be signaled by the ship's continuous whistle (FPSO or TANKER). This signal stops all loading. Emergency communications must be maintained by means of written messages and boat transfer, until communication normalizes.

In case of VHF failure, communication should be attempted by email or Inmarsat and loading should be stopped until VHF communications are re-established.

In the event of an emergency, the emergency stop system must be activated to stop the transfer of cargo. The TERMINAL is alerted via VHF radio and warned of the intended situation and action (if any). In the event of an emergency in the STRONG TERMINAL, the team must activate the emergency stop system to stop the loading and inform the Tanker of the situation and the necessary action.

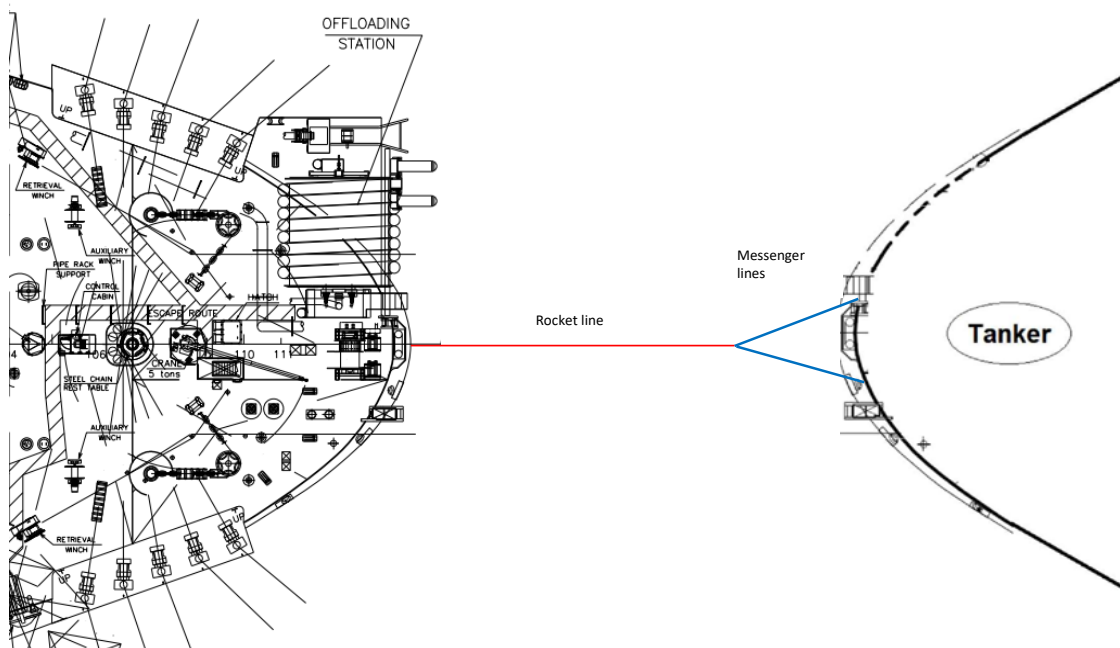
Upon receiving confirmation from the TERMINAL that the load transfer has been stopped, the hose disconnection can be released. The unmooring must then proceed. If time permits, disconnection and release of the hose and unmooring must follow the normal procedure.

If the weather does not permit a normal start, then the Terminal's manual emergency release system must be operated. The hose and mooring line must be automatically released on the bow or on the DPST gangway.

9. Attachment

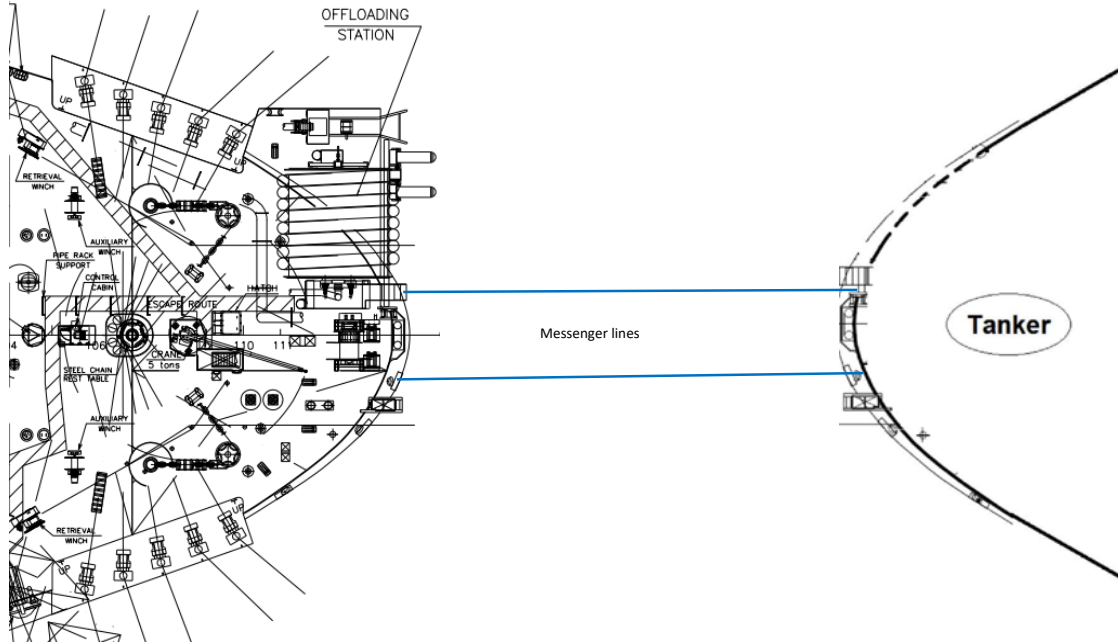
ATTACHMENT I

MOORING – STEP 1

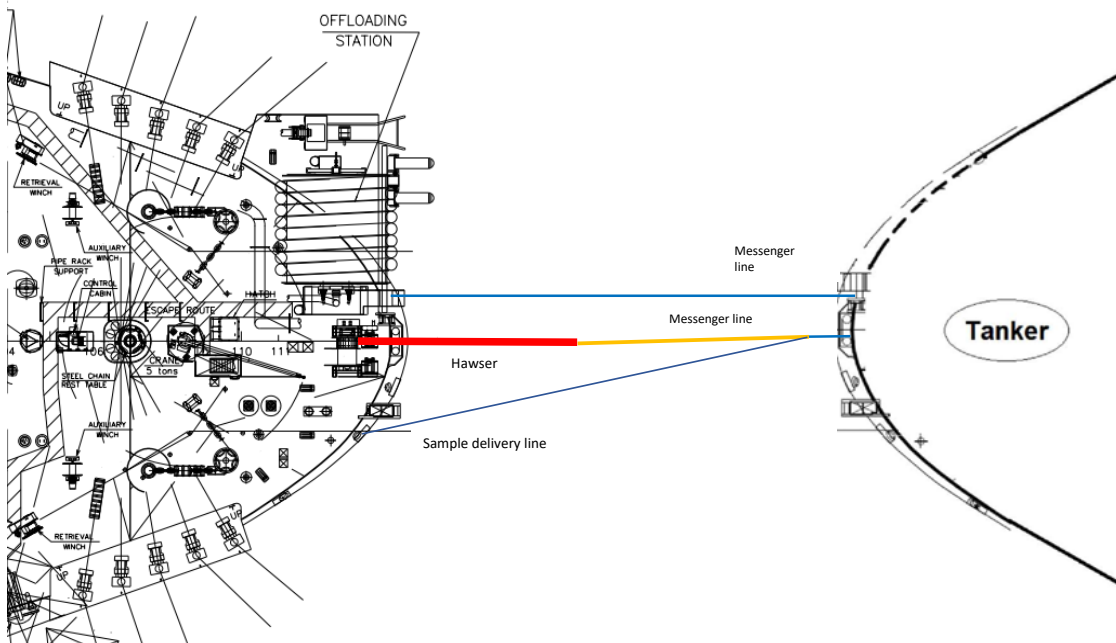


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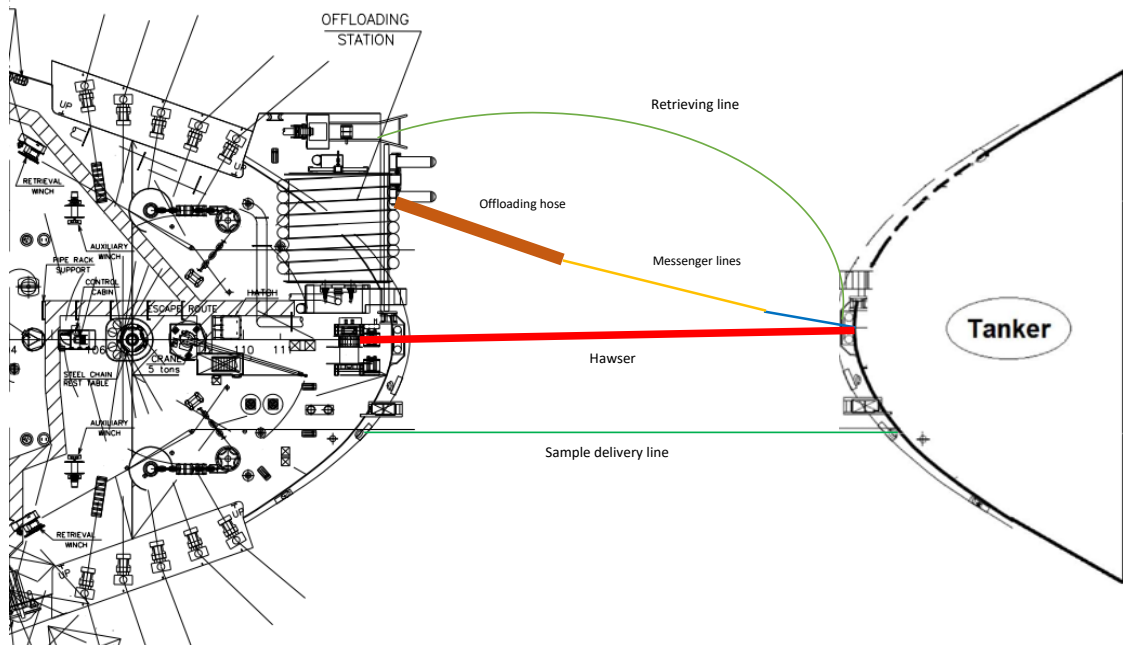
MOORING – STEP 2



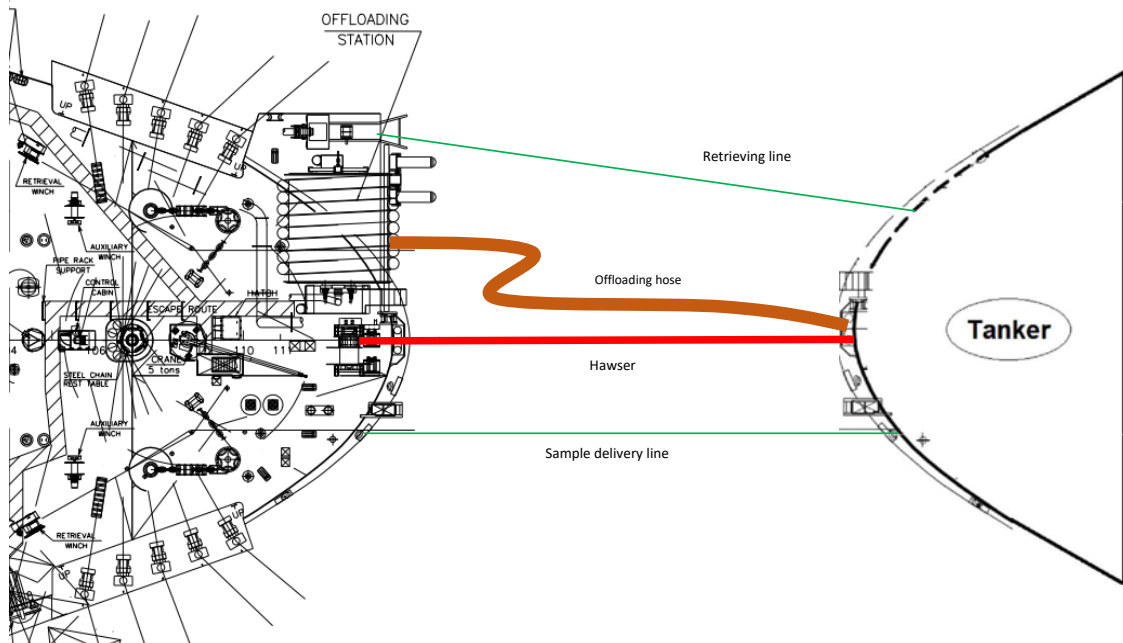
MOORING – STEP 3



MOORING – STEP 4



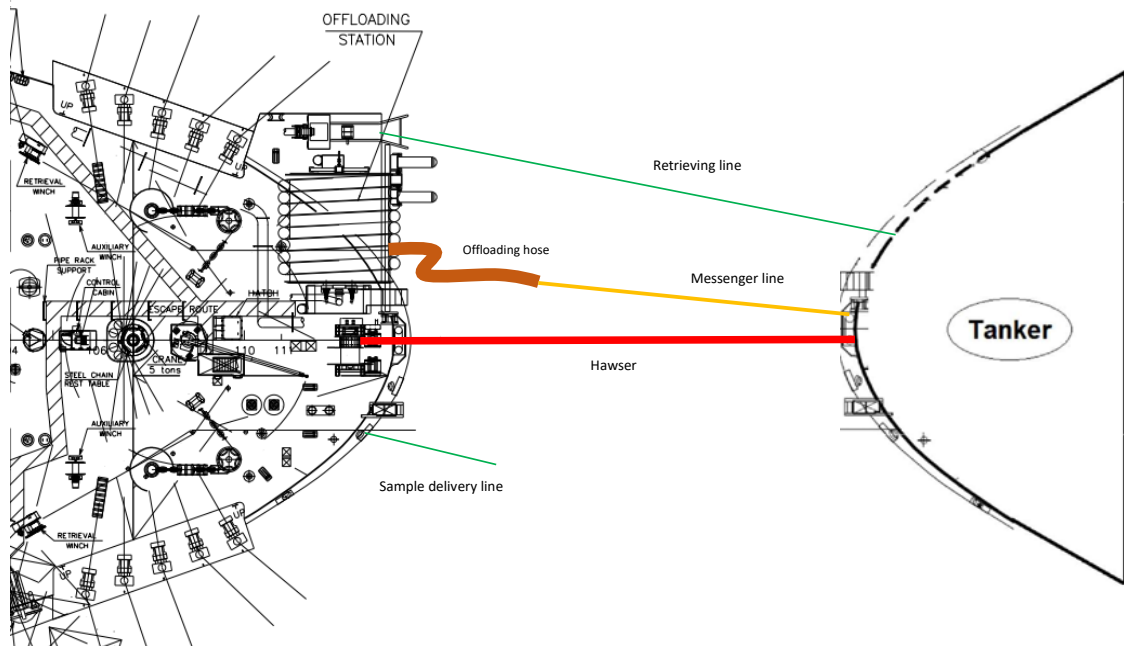
MOORING – STEP 5



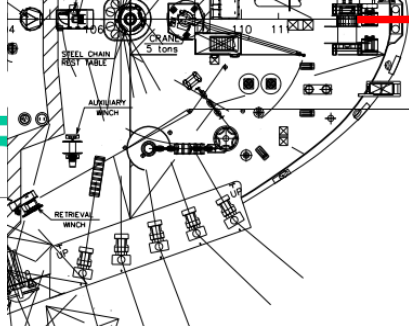
A atualização deste documento é garantida apenas através do Sistema Online. Cópia Controlada é indicada através de carimbo, do contrário, qualquer cópia em papel é considerada como exemplar Não Controlado, podendo ser consultado em situação específica. Caso este documento seja aplicado para alguma atividade, solicitar Cópia Controlada a Área de Controle de Documentos.

ATTACHMENT II – Unmooring

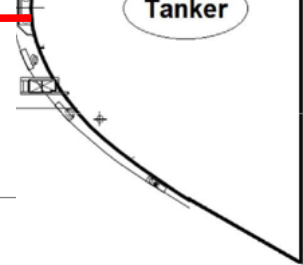
UNMOORING – STEP 1



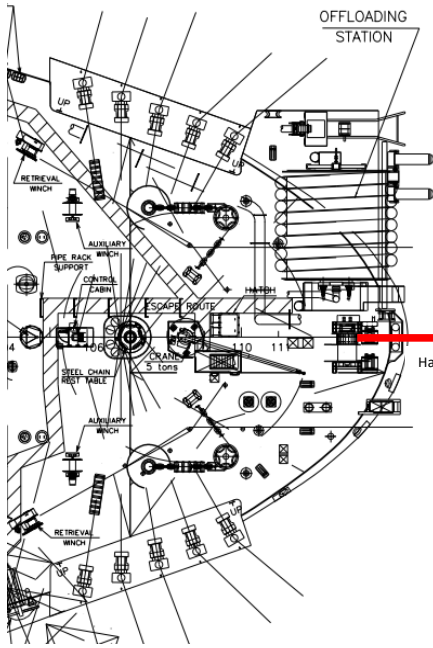
UNMOORING – STEP 2



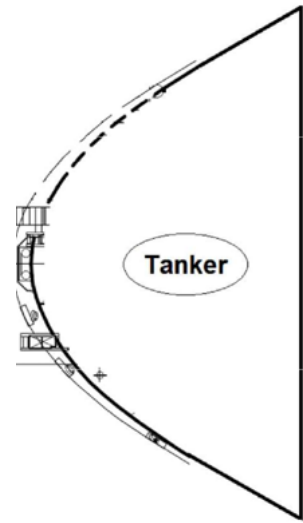
Hawser
 Regulations ABL FPSO
 FORTE



UNMOORING – STEP 3



Hawser
 Messenger line



ATTACHMENT III – CHECK LIST #2: PRE - MOORING

Pre-mooring

Item <i>Item</i>	Etapa <i>Step</i>	Terminal <i>FPSO</i>	Aliviador <i>Ship</i>
	O procedimento de amarração incluindo o plano de contingência foi discutido e acordado com o OIM / Comandante? <i>Berthing procedure including contingency plan discussed and agreed with OIM / Master?</i>		
	As condições de tempo são favoráveis para a amarração? Velocidade do Vento: 40kts Altura de Onda: 3,5m Visibilidade > 2NM <i>Are Weather conditions favorable for mooring? Wind limit: 40kts Wave height: 3,5m Visibility > 2NM</i>		
	Comunicações estabelecidas com o Aliviador/rebocadores de apoio? (Canal VHF acordado) <i>Communications established with DPST/Tugs? (VHF Channel agreed)</i>		
	O idioma da operação foi acordado? (Inglês/Português) <i>Is language of operation agreed? (English/Portuguese)</i>		
	O Aliviador possui ao menos (02) de (03) Sistemas de Referência de Posição operacionais? (como DARPS, Prismas, Artemis...) <i>Is the tanker with at least (02) out of (03) independent Position Reference System operational? (such as DARPS, Fan Beams, Artemis...)</i>		

	O Aliviador chegará com a(s) hélice(s) e thrusters completamente submergidos, adriçado e com trim não excedente a 0.015L? <i>Will the DPST/Tanker arrive with the propeller(s) and thrusters fully immersed, upright, and trim not exceeding 0.015L?</i>		
	Todos os cabos mensageiros foram inspecionados e estão prontos para uso? <i>Are all messenger lines inspected and ready for use?</i>		
	Os estopores de proa, buzinas e cabos foram inspecionados satisfatoriamente pelo aliviador? <i>Bow stoppers, leads, lines inspected and satisfactory on DPST/Tanker side?</i>		
	Ambas as âncoras do Aliviador estão apeadas? (cabos de aço, pinos e estopores no lugar) <i>Are both DPST/Tanker anchors secured? (wires, pawls and stoppers in place)</i>		
	Os guinchos de proa e popa estão em boas condições, ligados e testados? <i>Are fore/aft deck winches in good order, power on and tested?</i>		
	Outros equipamentos de amarração prontos <i>Other mooring equipment fully ready</i>		
	Sistemas de carga e descarga operacionais e prontos <i>Offloading/Loading system fully operational and ready</i>		
Item <i>Item</i>	Etapa <i>Step</i>	Terminal <i>FPSO</i>	Aliviador <i>Ship</i>
	A tripulação do Aliviador está pronta para amarrar rebocadores (se houver) e executar a manobra de amarração ao terminal? <i>DPST/Tanker crew ready to secure tugs (if any) and carry out mooring?</i>		
	Os cabos de proa e popa do Aliviador estão prontos para lançar <i>DPST/Tanker Fore and aft wires inspected and ready for deployment</i>		
	Equipamento de içamento de proa e popa adequado para uso?		

	<i>Bow / Stern manifold lifting gear suitable for use?</i>		
	Equipamento de manuseio do mangote foi inspecionado? <i>Hose securing equipment inspected?</i>		
	Existe iluminação adequada no local de manobra? <i>Is adequate lighting available?</i>		
	Equipamento de navegação / passadiço está operacional. <i>Bridge / navigational equipment and machinery operational</i>		
	Máquina testada avante e a ré <i>Engine tested ahead and astern</i>		
	Tem um timoneiro proficiente no leme? <i>Is proficient helmsman at the wheel?</i>		
	O rebocador confirma que os sistemas de propulsão/manobrabilidade/energia foram testados antes do Aliviador aproximar? (caso uma embarcação de apoio/stand by for usada) <i>Tug confirmed power/propulsion/steering system tested and set prior to approaching DPST/Tanker? (if SBV will be used).</i>		
	Cabeços e buzinas com o SWL estabelecido e verificado. <i>Bits/Fairlead SWL ascertained</i>		
	O Aliviador chegará e manterá seus tanques de carga inertizados com um conteúdo de oxigênio menor que 8%? <i>Will DPST arrive with, and maintain her cargo tanks in an inert condition with O2 atmosphere content of less than 8%?</i>		
	Os tanques de carga foram adequadamente purgados e os mesmos contêm níveis de H2S menores que 10ppm na atmosfera? O Capitão foi informado que todos os tanques de carga no aliviador deverão ser purgados para assegurar que os níveis de H2S são menores que 10ppm medidos no vapor antes de chegar no Terminal do FPSO Forte. O tempo requerido para purgar os tanques de		

	<p>carga para se adequar a este requerimento correrão por conta do Armador do Aliviador. <i>Are all cargo tanks suitable purged and tanks contain H2S levels less than 10ppm in atmosphere? Captain is advised that all vessel cargo tanks are to be purged to ensure that H2S levels are less than 10ppm measured in vapor prior to arrive at FPSO Forte Terminal. All time required for purging cargo tanks to meet this requirement shall be for DPST/Tanker Owners account.</i></p>		
	<p>O Aliviador possui casco duplo? <i>Is the DPST/Tanker a double hull?</i></p>		
Item <i>Item</i>	Etapa <i>Step</i>	Terminal <i>FPSO</i>	Aliviador <i>Ship</i>
	<p>O Aliviador cumpre os requerimentos de Equipamento Classe II conforme a Circular MSC 645 da IMO como mínimo? <i>Is the DPST meet Equipment Class II of IMO MSC Circular 645 as a minimum?</i></p>		
	<p>O Aliviador executou o teste anual de DP dentro do prazo e tem o reporte do mesmo disponível? <i>Did the DPST/Tanker carry out annual DP-trial within last year and report available?</i></p>		
	<p>O Aliviador está livre de deficiências pendentes decorrentes do último teste anual de DP? <i>Is the DPST/Tanker free of any outstanding deficiencies from last annual DP trial?</i></p>		
	<p>O Aliviador tem o seu sistema de DP (quando aplicável) operacional e testado? <i>Is the DPST/Tanker DP system (when applicable) fully operational and tested?</i></p>		
	<p>O Aliviador possui pelo menos um estopor/freio de tipo lingueta no convés das âncoras na proa (sistema de carregamento por proa) capaz de suportar amarras de 76mm de diâmetro de elo e SWL de 200T? (caso seja um navio DP de carregamento por proa)</p>		

	<i>Is DPST/Tanker equipped with at least one ADK tongue type chain stoppers at the BLS capable of accepting 76mm chafe chains of 200 tons SWL?</i>		
	O Aliviador pode conectar um mangote de 20 polegadas no sistema de carregamento de proa? <i>Can the DPST connect 1 x 20 inches cargo hose at the BLS?</i>		
	O Aliviador se encontra livre de qualquer falha ou deficiência conhecida que possa afetar o mesmo durante a aproximação, amarração, carga (offloading) e capacidade de manter a posição durante a operação de Offload? <i>Is the DPST/Tanker free of any known defects or deficiencies which can make effect to the DPST/Tanker approach, berthing, offloading and position keeping during the offloading operation?</i>		
	O sistema de alarme da dala da casa de bombas se encontra operacional? <i>Is the pumproom bilge alarm system operational?</i>		
	O sistema de detecção de gases da casa de bombas se encontra operacional? <i>Is the pumproom gas detection system operational?</i>		
	A embarcação realizou a busca por clandestinos antes da saída do porto anterior? O nível de proteção foi informado? <i>Did the vessel carry out a stowaway search prior to departure from last port of call? Is the security level informed?</i>		
	A Embarcação implementará medidas adequadas de proteção e anti-pirataria antes da chegada ao Terminal do FPSO Forte? <i>Will the vessel implement adequate anti-piracy and security precautions prior to arrival at FPSO Forte Terminal?</i>		
	A tripulação está pronta para iniciar a amarração? <i>Is the crew ready to start mooring?</i>		

Item <i>Item</i>	Etapa <i>Step</i>	Terminal <i>FPSO</i>	Aliviador <i>Ship</i>
	<p>O Aliviador executou o teste do sistema de reboque de emergência dentro dos últimos três meses?</p> <p><i>Did the DPST/Tanker carry out the trial of emergency towing arrangement within the last three months?</i></p>		
	<p>O Aliviador tem tanques slop limpos e vazios para receber 500 m3 de água aproximadamente?</p> <p><i>Does the DPST/Tanker have clean and empty slop tanks to receive flushing water of approximately 500 m3 from the hose?</i></p>		
	<p>A capacidade de manobra do Aliviador sem ajuda de um AHTS foi verificada e o Terminal/FPSO foi informado caso seja necessário o uso de um AHTS.</p> <p><i>Export tanker ability to maneuver without an AHTS verified and FPSO/Terminal informed whether an AHTS is required</i></p>		
	<p>O Aliviador confirma que o Offloading será executado com o sistema de DP ativo com pelo menos 2 de 3 sistemas de referência de posição em operação (DARPS, ARTEMIS, prismas) – quando aplicável –</p> <p><i>DPST/Tanker to confirm Offloading will be carried out with the DP system active with at least 2 out of 3 position reference systems locked (DARPS, ARTEMIS, Fan Beams) – when applicable –</i></p>		
	<p>O equipamento de Offloading será considerado operacional quando, porém não limitado a:</p> <ul style="list-style-type: none"> - A estanqueidade e condição operacional correta da NSV for verificada antes do Offload. - Os indicadores de pressão e alarmes estão operacionais (trip das bombas de carga/offloading está operacional) - <i>O cabo mensageiro do mangote foi desconectada da mangueira e se mantem</i> 		

	<p><i>desconectado durante o período da conexão da NSV com o BLS do Aliviador.</i> <i>The Offloading equipment is checked operational including, but not limited to:</i></p> <ul style="list-style-type: none"> - <i>Hose end valve (NSV) is checked for correct operational and tightness prior to the Offload.</i> - <i>Pressure indicators and alarms confirmed operational (trip of pumps/offloading operational)</i> - <i>The Messenger rope is detached from the hose while it remains connected to the BLS</i> 		
	<p>A desconexão de emergência e BLS (sistema de carregamento por proa) foram confirmados operacionais antes do início do Offloading. Sua ativação será em modo manual e só após informar o Terminal.</p> <p><i>The emergency disconnection and BLS on tanker side is confirmed to be operational prior to the Offloading. It's activation is on manual mode and only after informing the FPSO</i></p>		

For DPST/Ship	For FPSO/Terminal
<p>Name: <i>Nome</i></p>	<p>Name: <i>Nome</i></p>
<p>Rank: <i>Função</i></p>	<p>Rank: <i>Função</i></p>
<p>Signature: <i>Assinatura</i></p>	<p>Signature: <i>Assinatura</i></p>
<p>Date and time: <i>Data e hora</i></p>	<p>Date and time: <i>Data e hora</i></p>

ANEXO III – ALIVIADOR/TERMINAL CHECK LIST DE SEGURANÇA

A atualização deste documento é garantida apenas através do Sistema Online. Cópia Controlada é indicada através de carimbo, do contrário, qualquer cópia em papel é considerada como exemplar Não Controlado, podendo ser consultado em situação específica. Caso este documento seja aplicado para alguma atividade, solicitar Cópia Controlada a Área de Controle de Documentos.

ATTACHMENT III – *SHIP/TERMINAL Safety Check List*

Nome da Embarcação: _____
(Ship's Name)

Amarradouro:
(Berth)

Porto:
(Port)

Data de Chegada: _____
Chegada: _____
(Date of Arrival)

Horário **da**
(Time of Arrival)

Instrução para conclusão:
Instruction for completion:

A segurança de operações exige que todas as perguntas sejam respondidas afirmativamente, marcando claramente a caixa apropriada. Se uma resposta afirmativa não for possível, o motivo deve ser fornecido e um acordo alcançado com as devidas precauções a serem tomadas entre o Aliviador e o Terminal. Quando qualquer questão for considerada não aplicável, uma nota a esse respeito deve ser inserida na coluna de comentários.

A célula na coluna “Aliviador” e “Terminal” que as verificações devem ser executadas pela parte responsável.

A presença da letra R na coluna observações indica que esses itens deverão ser verificados a intervalos que não excedam o acordado na declaração.

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

A box in the column “ship” and “terminal” indicates that checks should be carried out by the party concerned.

The presence of the letter R in the remarks column indicate that these items are to be re-checked at intervals not exceeding that agreed in the declaration.

Item	Procedimento <i>Procedure</i>	Aliviador <i>DPST</i>		Terminal <i>FPSO</i>		Comentários <i>Comments</i>
		Sim <i>Yes</i>	No <i>No</i>	Sim <i>Yes</i>	No <i>No</i>	
1	O navio está amarrado com segurança? <i>Is the ship securely moored?</i>					R
2	Os cabos de reboque de emergência estão posicionados corretamente? <i>Are emergency towing wires correctly positioned?</i>					R
3	O navio está pronto para se mover por conta própria? <i>Is the ship ready to move under its own power?</i>					R
4	Existe um serviço de vigia suficiente e eficaz no convês? <i>Is there sufficient and effective deck watch?</i>					R
5	O sistema de comunicação Aliviador / Terminal foi acordado e testado? <i>Is the Ship/Terminal communication agreed and tested?</i>					R
6	O sinal de emergência a ser usado pelo Aliviador e o TERMINAL foi explicado e entendido? <i>Has the emergency signal to be used by SHIP and TERMINAL been explained and understood?</i>					
7	Os procedimentos para manuseio de carga, bunker e lastro foram acordados? <i>Have the procedures for cargo, bunker and ballast handling been</i>					R

	<i>agreed?</i>					
8	Os perigos associados às substâncias tóxicas na carga que está sendo movimentada foram explicados e compreendidos? <i>Have the hazards associated with toxic substances in the cargo being handled been explained and understood?</i>					
9	O procedimento de parada de emergência foi acordado? <i>Has the emergency shutdown procedure been agreed?</i>					
		Aliviador <i>DPST</i>		Terminal <i>FPSO</i>		
	Sistema de Gás inerte <i>Inert Gas System</i>	Sim <i>Yes</i>	No <i>No</i>	Si m <i>Yes</i>	No <i>No</i>	Comentários <i>Remarks</i>
10	As mangueiras e equipamentos de combate a incêndio a bordo estão posicionados e prontos para uso imediato? <i>Are fire hoses and fire-fighting equipment on board positioned and ready for immediate use?</i>					R
11	Os mangotes / braços de carga e bunker estão em boas condições, devidamente montadas e apropriadas para o serviço pretendido? <i>Are cargo and bunker hoses/arms in good condition, properly rigged and appropriate for the service intended?</i>					
12	Os embornais estão bem conectados e as bandejas de gotejamento estão posicionadas?					R

	<i>Are scuppers effectively plugged and drip trays in position?</i>					
13	As conexões de carga e bunker não utilizadas estão devidamente protegidas com flanges cegos totalmente aparafusados? <i>Are unused cargo and bunker connections properly secured with blank flanges fully bolted?</i>					
14	As válvulas de descarga do mar, quando não em uso, estão fechadas e visivelmente protegidas? <i>Are sea and overboard discharge valves, when not in use, closed and visibly secured?</i>					
15	Todas as tampas dos tanques de carga e bunker estão fechadas? <i>Are all cargo and bunker tank lids closed?</i>					
16	O sistema de ventilação de tanques acordado está sendo usado? <i>Is the agreed tank venting system being used?</i>					R
17	O funcionamento das válvulas P/V e/ou saídas de alta velocidade foram verificadas usando a alavanca de verificação quando instalada? <i>Has the operation of the P/V valves and/or high velocity vents been verified using the check lift facility where fitted?</i>					
18	As lanternas portáteis são de tipo aprovado? <i>Are hand torches of an approved type?</i>					
		Aliviador <i>DPST</i>		Terminal <i>FPSO</i>		
	Sistema de Gás inerte <i>Inert Gas System</i>	Sim <i>Yes</i>	No <i>No</i>	Si <i>m</i> <i>Yes</i>	No <i>No</i>	Comentários <i>Remark</i>

						S
19	Os transceptores portáteis VHF / UHF são do tipo aprovado? <i>Are portable VHF/UHF transceivers of an approved type?</i>					
20	As antenas principais do transmissor de rádio do Aliviador estão aterradas e os radares desligados? <i>Are the Ship main radio transmitter aerials earthed and radars switched off?</i>					
21	Os cabos elétricos para equipamentos elétricos portáteis estão desconectados da fonte de energia? <i>Are electric cables to portable electrical equipment disconnected from power?</i>					
22	Todas as vigias e portas externas das acomodações estão fechadas? <i>Are all external doors and ports in accommodation closed?</i>					R
23	Os aparelhos de ar-condicionado tipo caixa estão desconectados? <i>Are window-type air conditioning units disconnected?</i>					
24	As entradas de ar-condicionado que possam permitir a entrada de vapores de carga estão fechadas? <i>Are air conditioning intakes which may permit the entry of cargo vapors closed?</i>					
25	Os requisitos para o uso de equipamentos de cozinha estão sendo observados? <i>Are the requirements for use of galley equipment being observed?</i>					R
26	Os regulamentos de fumo estão sendo observados? <i>Are smoking regulations being</i>					R

	<i>observed?</i>					
27	Os regulamentos de chama aberta estão sendo observados? <i>Are naked light regulations being observed?</i>					R
		Aliviador <i>DPST</i>		Terminal <i>FPSO</i>		
	Sistema de Gás inerte <i>Inert Gas System</i>	Sim <i>Yes</i>	No <i>No</i>	Si m <i>Yes</i>	No <i>No</i>	Comentários <i>Remarks</i>
28	O Aliviador está em modo autônomo de DP (caso seja de este tipo) e mantendo a posição referente ao terminal – FPSO? <i>Is DPST in DP autonomous mode (in case it is of this type) and holding position from FPSO?</i>					
29	Há meios para um escape de emergência? <i>Is there provision for an emergency escape?</i>					R
30	Há pessoal suficiente a bordo para lidar com uma emergência? <i>Are sufficient personal on board to deal with an emergency?</i>					
31	Foram tomadas medidas para garantir ventilação suficiente na sala de bombas? <i>Have measures been taken to ensure sufficient pump room ventilation?</i>					R
32	Se o navio for capaz de realizar o carregamento fechado, foram acordados os requisitos para as operações fechadas? <i>If the ship is capable of closed loading, have the requirements for</i>					R

	<i>closed operations been agreed?</i>					
33	Os planos de controle de incêndio de emergência da Aliviador estão localizados externamente? <i>Are Ship's emergency fire control plans located externally?</i>					R
34	O sistema de gás inerte está totalmente operacional e em boas condições de funcionamento? <i>Is the Inert Gas System fully operational and in good working order?</i>					
35	O selo de convés do gás inerte em boas condições? <i>Are deck seals in good condition?</i>					R
36	Os níveis de líquido na torre de Pressão / Vácuo estão corretos? <i>Are liquid levels in P/V breakers correct?</i>					R

	Sistema de Gás inerte <i>Inert Gas System</i>	Aliviador <i>DPST</i>		Terminal <i>FPSO</i>		Comentários <i>Remarks</i>
		Sim <i>Yes</i>	No <i>No</i>	Si m <i>Yes</i>	No <i>No</i>	
37	Os analisadores de oxigênio fixos e portáteis foram calibrados e estão funcionando corretamente? <i>Have the fixed and portable oxygen analyzers been calibrated and are they working properly?</i>					R
38	Os registradores fixos de pressão de gás inerte e de conteúdo de oxigênio estão funcionando?					R

	<i>Are fixed IG pressure and oxygen content recorders working?</i>					
39	Todas as atmosferas de tanques de carga estão sob pressão positiva com um teor de oxigênio de 8% ou menos por volume? <i>Are all cargo tank atmospheres at positive pressure with an oxygen content of 8 % or less by volume?</i>					R
40	Todas as válvulas de gás inerte individuais dos tanques estão corretamente definidas e travadas (caso exista um sistema de intertravamento)? <i>Are all the individual tank IG valves (if fitted) correctly set and locked?</i>					R

Declaração:

Declaration:

Nós os assinantes abaixo temos verificado, quando apropriado em conjunto, os itens desta lista de verificação e estamos satisfeitos e convictos que os registros foram feitos de acordo com nosso conhecimento e ciência.

Temos acordado também que verificações repetitivas devem ser executadas conforme necessário e como indicado nos itens marcados com a letra “**R**” em intervalos que não excedam ____ horas.

We the undersigned have checked, where appropriate jointly, the item on this checklist 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 with the letter “R” should be rechecked at intervals not exceeding ___ hours.

For DPST/Ship	For FPSO/Terminal
Name: <i>Nome</i>	Name: <i>Nome</i> No
Rank: <i>Função</i>	Rank: <i>Função</i>
Signature: <i>Assinatura</i>	Signature: <i>Assinatura</i>
Date: <i>Data</i>	Date: <i>Data</i>
Time: <i>Hora</i>	Time: <i>Hora</i>

ATTACHMENT IV - TERMINAL INFORMATION FORM

(Please indicate units of measurement for all data)

(Different forms to be completed for each terminal – Each berth in the terminal to be reported)

PORT DETAIL:

Installation	FPSO FORTE	Port Code (World Port Index - if available)	
Country	Brazil	UN Country Code (If available)	
Latitude	22° 05.2' S	Salinity (Salt / Brackish / Fresh)	Salt
Longitude	039° 49.7' W	Tidal Range	Not applicable

	INBOUND CHANNEL	ALBACORA LESTE FIELD			
Width of Channel / Position of anchorage	Not applicable	Lat:	Not applicable	Long:	Not applicable
Minimum Depth of Channel	Not applicable	1230 meters			
Max current	Not applicable	1,4 knots			
Bottom Type (Rock/Mud/Sand etc.)	Not applicable	mud			
Minimum Vertical Clearance at high water datum (Bridges / Power cables / vertical obstructions)	Not applicable	N/A			
Date of Latest Depth Soundings	Not applicable	2009			
Port Under Keel Clearance requirements	Not applicable	N/A			
Additional Port Information / Comments:	No anchorage area available at Terminal. A waiting area is established 6 miles North of the FPSO FORTE. Vessels are allowed to approach the FPSO FORTE without a nominated Mooring Master on board.				
<i>Attach additional pages as necessary</i>					

CHANNEL / ANCHORAGE INFORMATION:

TERMINAL DETAIL

Forte Terminal is a VLCC converted to a FPSO, Bow manifold, Tandem mooring system with 1 hawser. LOA: 337,36 m, Breadth: 54,5 m, Depth: 27,8 m.			
NAME OF TERMINAL	FPSO FORTE	Minimum depth in approaches to terminal	1200 m
Phone IMM - M		Bottom Type	Mud
Fax		Max Tidal Range	1,5 meters
e-mail		Max current Velocity	1,4 Knots
Terminal Under Keel Clearance requirements:	N/A		
Additional Port Information / Comments:			

- 1- FPSO FORTE Terminal is designed to handle tankers up to SUEXMAX in ballast condition (first load port).
Maximum LOA of 274,0 meters, acceptable due floating hose length.
- 2- Offloading hose will be connected to a Bow Loading System manifold (BLS).
Hose connection required: 01 Tanker-end North Sea Valve (NSV) 20".
Export Tanker must be able to always maintain 30% of her Summer DWT while at the Terminal
- 3- Export Tanker must be SBT, either single or double hull
- 4- AFRAMAX tankers can be handled, if fitted with a 15 Tons SWL hose handling crane with 5 meters outreach.
- 5- Bow and manifold arrangement must comply with OCIMF (MEG-4) recommendations.
2 AKD tongue type chain stopper or hydraulically activated quick release chain stopper suitable for 76 mm chain are required. Chain stopper of hinged bar type will not be acceptable.
- 6- 2 rope storage drums required for handling mooring hawser's pickup rope.
Use of warping head for handling the hawser's pickup rope is not allowed.
- 7- Export Tanker to be able to receive up to 3900 barrels of hose flushing/backflushing water.
- 8- All tankers must test the presence of H₂S in the cargo tanks and advice the FORTE Terminal of the levels of H₂S 48 hours and 24 hours prior to arrive at FORTE Terminal. While the tanker is berthed at FORTE Terminal the H₂S level must be less than 10ppm on all the deck areas.
- 9- A 200 T - SWL bollard on poop deck for escort tug connection is preferred.
However, a 75 T - SWL bit will be acceptable as a MINIMUM

Attach additional sheets as necessary

TERMINAL DETAIL

Name of the person completing this form	
Title	
Company	
Contact number / Email	
Date	

