TOTAL E&P ANGOLA BLOCK 32

KAOMBO Project

SOFRESID ENGINEERING & CONSTRUCTION

KAOMBO NORTE - TERMINAL REGULATIONS & PROCEDURES

Rev.	Status	Date	Revision Description	Issued by	Reviewed by	Approved by
03	AFC	03-May-2016	Approved For Construction with HOLD	B. Le Rhun	S. Desbois	J.De-Malleray
02	AFC	13-Apr-2016	Approved For Construction with HOLD	B. Le Rhun	S. Desbois	J.De-Malleray
01	IFA	18-Feb-2016	Issued For Approval with HOLD	B. Le Rhun	S. Pena	J.De-Malleray
00	IFR	16-Dec-2015	Issued For Review with HOLD	B. Le Rhun	C. Carmelino	J.De-Malleray

Revision list:

Rev.Nr	Modifications:
01	CPY comments integrated
02	CPY comments integrated
03	CPY comments integrated

Hold list:

Hold Nr	Hold Description:
1	Appendices to be implemented
2	Beaconing datas to be updated
3	Cargo informations to be updated
4	Contacts details to be updated

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1. PURPOSE

KAOMBO NORTE Terminal port regulations.

The purpose of this document is to acquaint such Vessel Masters, Owners and Charterers with the regulations and procedures that have to be observed at the Terminal. It has been prepared in accordance with the recommendations of the “International Safety Guide for Oil Tankers and Terminals” (ISGOTT).

2. FIELD OF APPLICATION

These KAOMBO NORTE Terminal Regulations and Procedures apply to Vessel Disponent Owners, Vessel Masters and Vessel Charterers calling at the KAOMBO NORTE Terminal which is operated by TOTAL E&P ANGOLA Block 32 Limited.

The information in the KAOMBO NORTE Terminal Regulations and Procedures does not supersede or replace any information, laws, regulations, official documents, charts or publications with respect to the waters and areas to which it covers. The KAOMBO Terminal is under the jurisdiction of the REPUBLIC OF ANGOLA. Therefore, in addition to the compliance with the KAOMBO Terminal Regulations and Procedures, Vessel Master and Vessel Parties must also comply with any applicable international, national or local laws, regulations, rules, customs and restrictions of the REPUBLIC OF ANGOLA when calling at the KAOMBO Terminal. The Vessel Master shall contact their local agent in order to comply with these restrictions, laws and regulations, rules, customs and restrictions.

The information in this KAOMBO NORTE Terminal Regulations and Procedures booklet is believed to be accurate as at the time of publication, but TOTAL E&P ANGOLA Block 32 Limited assumes no responsibility regarding its accuracy or that of any information which may appear in supplemental publications, additions or corrections. TOTAL E&P ANGOLA Block 32 Limited reserves the right to modify this document at any time and without notice, provided however that the provisions of Section 4.2 (Liability) of this Terminal Regulations and Procedures of which the Vessel Master has already acknowledged receipt as described in section 4.1 shall apply with respect to the operations for which the Vessel has been nominated and accepted.

The Vessel Master shall in all circumstances remain solely responsible for the safety and safe navigation of his Vessel and for compliance with all applicable laws and regulations.

3. DEFINITIONS

With regard to the CONTRACT between TOTAL E&P Block 32 Limited and a consortium comprising SAIPEM LUXEMBOURG SA (Sucursal) DE ANGOLA and INTEROIL ANGOLA LDA named FOS CONTRACTOR in this document, This document is to be read in conjunction of the CONTRACT DOCUMENTS especially the AGREEMENT. Any capitalised words used herein which do not have a

specific meaning attributed to them shall have the same meaning as defined in the AGREEMENT or the EXHIBIT A of the FOS CONTRACT. In all cases, FOS CONTRACTOR must request clarification from COMPANY in case of any conflict or lack of clarity.

- **Affiliate:** in relation to any Terminal Titleholder (including the Terminal Operator), a company, corporation or other legal entity taht is controlled by or controls such Terminal Tittleholder. For purpose hereof ''control'' means the ownership directly or indirectly of more than fifty percent (50%) of the voting rights in a legal entity.
- **ANSI:** American National Standards Institute.
- **ASD Tug:** Azimuth Stern Drive.
- **Assistance vessels:** vessels able to assist a Vessel during approach, mooring, loading and unmooring operations. Assistance vessels are specific to the Terminal.
- **AHTS vessel:** vessel used for Tandem offloading, moored at stern of the Vessel
- **CCR**: Central Control Room of the FPSO KAOMBO NORTE
- **COLREG:** “International Regulations for preventing Collision at Sea, 1972”.
- **Deadweight (summer):** means the difference in metric tons between the Displacement of a vessel in water of a specific gravity of 1.025 at the load waterline corresponding to the assigned summer freeboard and the lightweight of the ship.
- **Displacement (summer):** is the number of metric tons of water displaced by a vessel afloat in water of a specify gravity of 1.025 at the load waterline corresponding to the assigned summer freeboard. The sum of lightweight and deadweight is equal to the displacement.
- **Draught:** the depth of the vessel below the water line measured vertically to the lowest part of the hull (or other reference point). When measured to the lowest portion of the vessel it is called extreme draught, when measured at the bow, it is called the forward draught and when measured at the stern, the after draught, the average of the forward draught and the after draught is the mean draught, and the mean draught in loaded condition is the load draught.
- **Draught Marks:** the numbers which are placed on each side of the vessel at the bow and stern (and sometimes amidships) to indicate the distance from the lower edge of the number to the bottom of the keel.
- **Freeboard:** the distance from the waterline to the upper surface of the freeboard deck at side.

- **FOS CONTRACTOR:** a consortium comprising SAIPEM LUXEMBOURG SA (Sucursal) DE ANGOLA and INTEROIL ANGOLA LDA who has been delegated the operation of the KAOMBO NORTE Terminal by Terminal Operator.
- **FPSO:** Floating Production Storage and Offloading.
- **IMO:** International Maritime Organization.
- **ISGOTT:** International Safety Guide for Oil Tankers and Terminals.
- **ITOPF:** International Tanker Owners Pollution Federation Limited.
- **Lightweight:** means the displacement of a ship in metric tons without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, and passengers and crew and their effects.
- **Marine Terminal Area of Operational Responsibility and Prohibited Zone** (Restricted Area): Refer to Section 6.4.1 of this document.
- **Mooring Master Assistant:** a representative of the Terminal Operator, or its delegate, who boards the Vessel with the Mooring Master and provides him with all necessary information from the deck level during approach, mooring, loading and unmooring operations.
- **Nautical mile:** is 1,852 m or 6,080 ft.
- **NOR or Notice of Readiness:** notice served by the Vessel Master to the Terminal stating that the Vessel is in all respects ready to load cargo.
- **OCIMF:** Oil Companies International Marine Forum.
- **OIM or Offshore Installation Manager:** by nomination of FOS CONTRACTOR, OIM is the highest authority of the KAOMBO Terminal and is responsible for every day planning, co-ordination, monitoring and control of operations and safety of the Terminal.
- **Mooring Master:** a qualified technical marine advisor with a master's degree certificate as required by STCW 95 regulations and a representative of the Terminal Operator, or its delegate,. He boards the incoming Vessel to advise the Vessel Master on ship manoeuvring/positioning during approach, mooring, loading and unmooring operations at the Terminal. He is in permanent radio contact with the Vessel Cargo Officer and the Terminal. He is the sole point of contact of the Vessel Master for technical and administrative tasks linked to the loading operations. The Master of the Vessel should ensure that bridge management system is still in force even when Mooring Master services are on board.
- **P&I or Protection and Indemnity:** insurance usually taking the form of a mutual insurance, covering the civil liability of ship owners members of the Club.

- **Restricted Area:** Equivalent of the Marine Terminal Area of Operational Responsibility and where navigation is restricted.
- **RSES or "Responsable Sécurité Environnement du Site":** ON HOLD [1].
- **Reid Vapour Pressure (RVP):** the vapour pressure of a liquid determined in a standard manner in the Reid apparatus at a temperature of 37.8°C and with a ratio of gas to liquid volume of 4:1. Used for comparison purposes only.
- **SPM:** Single Point Mooring in Tandem position.
- **Tandem Configuration:** this is a mooring arrangement which comprises a mooring hawser between the bow of the Vessel and the stern of the FPSO.
- **TEPA:** TOTAL E&P ANGOLA, acting as Operator of Block 32.
- **Terminal:** Any installation dedicated to or including oil storage and offloading facilities.
- **Terminal Operator:** TOTAL E&P ANGOLA Block 32 Limited
- **Terminal Representative:** a qualified technical advisor for crude oil loading operation designated by the Terminal Operator, or its delegate,. He is responsible for signing the export documents on behalf of TOTAL E&P ANGOLA Block 32 Limited and all the partners.
- **VEF or Vessel Experience Factor:** the ratio of the summation of adjusted Total Calculated Volume (TCV) Vessel measurement, to the summation of TCV or GSV (Gross Standard Volume) Bill of Lading figures. It is calculated from a minimum of ten (10) full cargo loads.
- **Vessel:** any crude oil tanker or chemical tanker calling at KAOMBO Terminal.
- **Vessel Master:** Captain of a Vessel.
- **Vessel Owner:** registered owner of the Vessel, as mentioned in Item 6 of the Continuous Synopsis Record (CSR) Document for the ship.
- **Vessel Disponent Owner:** Company managing the Vessel, as mentioned in Item 9 of the Continuous Synopsis Record (CSR) Document for the ship.
- **Vessel Party:** Vessel Master and the Vessel Disponent Owner
- **Vessel Scheduler:** Terminal personnel responsible for preparing and communicating lifting and discharging schedules for crude oil methanol and chemical tankers coming to the Terminal.
- **Work boat:** one of the Terminal specific Assistance Vessels able to move the hawser(s) and/or flexible floating hoses.

4. TERMINAL MARINE PROVISIONS

4.1 GENERAL

- Terminal Operator delegates authority to FOS CONTRACTOR nominated FPSO NORTE OIM within the boundaries of FOS CONTRACTOR HSE Management System and Permit to Work System employed for PLANT, FPSO mooring lines, standby buoys, meteo-ocean buoys and Offloading activities. As such, operation of the Terminal is delegated to the FOS CONTRACTOR.

- Any Vessel nominated to load at the KAOMBO Terminal must, for each loading, be accepted by the Terminal. The Terminal Operator, or its delegate, in its reasonable judgment, reserves the right for any reason whatsoever to approve or reject a nominated Vessel without recourse from the Vessel Party. All Vessels nominated by the Vessel Party to load at the Terminal must meet the general requirements for receiving and loading cargoes at the Terminal, including compliance with appropriate published or posted KAOMBO Terminal Regulations or Procedures and the relevant laws of the REPUBLIC OF ANGOLA. Any Vessel that fails to comply with such procedures or regulations may not be permitted to berth or may be asked to vacate the berth and any resulting damage, loss, costs or delays, howsoever caused shall be for the Vessel Party's account. Acceptance by the Terminal for any Vessel to load at a given time shall not constitute or imply a continuing acceptance by the Terminal of subsequent loading by such Vessel. A new Vessel approval is required for the loading of each cargo.

- Without prejudice to the foregoing, failure of any of a Vessel's critical safety, operational or environmental systems after initial acceptance by the Terminal shall constitute grounds for the Terminal to immediately reject such Vessel, and in such instance Terminal Operator, or its delegate, has the right to notify such Vessel and/or to vacate the berth until suitable repairs are made to return the critical safety, operational or environmental systems to good working order. Once rejected, the Vessel must be accepted again by the Terminal prior to the start or resumption of transfer operations. The Terminal Operator and the Terminal Titleholders shall not be responsible for time loss, bunkers consumed or any costs, expenses or liabilities incurred in effecting repairs and/or obtaining the Terminal's and local authorities approvals and Vessel Party shall defend and indemnify the Terminal Operator Indemnitees from any claims related to such losses, costs, expenses and liabilities. Any delays resulting from such repairs shall not count as used lay time or as time on demurrage, even if already on demurrage.

- As a pre-condition to loading at the Terminal, Vessel Party are required to undertake to adhere strictly to and be fully bound by these KAOMBO Terminal Regulations and Procedures. The Vessel Party shall comply with any safety measures and/or directives that TOTAL E&P ANGOLA Block 32 Limited may deem fit to take or give under specific circumstances.

- Upon arrival of the Mooring Master on board the Vessel, the Vessel Master will be required, on behalf of the Vessel Party, to acknowledge receipt of the Terminal Regulations and Procedures and to sign an undertaking substantially in the form set out in Appendix 9 accepting to be bound by these KAOMBO Terminal Regulations and Procedures. The above notwithstanding, if for any reason, the above formality is not followed, the calling of the Vessel to load at the Terminal shall be deemed to be acceptance by the Vessel Party to be bound by and to comply with the provisions of these KAOMBO Terminal Regulations and Procedures.
- In addition to compliance with the KAOMBO Terminal Regulations and Procedures, all Vessels are required to observe the *REPUBLIC OF ANGOLA* maritime laws and international maritime regulations and to be subject to the controls established by the relevant authorities.
- The Vessel Party warrants that the Vessel is either fully compliant with or holds necessary waivers with respect to all applicable REPUBLIC OF ANGOLA laws and regulations in force as at the date Vessel gives its Notice of Readiness ("NOR"). The Vessel Party warrants that it is aware of and shall comply with all laws and regulations of the REPUBLIC OF ANGOLA while berthed at the Terminal. If the Vessel does not comply with such laws and regulations, the Vessel may be required to leave the Terminal and this shall be done at the expense of the Vessel Party. Any delay caused by the Vessel's failure to comply with laws and regulations of the REPUBLIC OF ANGOLA shall not count as used lay time or as time on demurrage, even if already on demurrage.
- To the extent that any provision of these Terminal Regulations and Procedures conflicts with any applicable international conventions or with the laws of the REPUBLIC OF ANGOLA, such provision shall be disregarded and the relevant provision of the convention or law shall prevail, except that (a) with respect to the provisions related to safety and environment the more stringent rule or provision shall prevail and (b) with respect to the sharing of liabilities pursuant to Section 5.2 under such circumstances, all other provisions of these Terminal Regulations and Procedures shall remain valid and in full force and effect.
- **Pollution**: Vessel Party and Vessel Masters are solely responsible for complying with all international conventions and REPUBLIC OF ANGOLA laws concerning pollution of the sea, having particular regard to the offshore sector.
    - Where there is an escape or discharge of cargo from the Vessel and such escape or discharge causes or threatens to cause pollution damage, the Vessel Master shall promptly take whatever measures are necessary to prevent or mitigate any such damage.
    - In this regard, the Terminal Operator, or its delegate, reserves the right to take any action that it deems necessary to contain and clean up the contaminated area within the Restricted Area and the Terminal Operator, or its delegate, shall be entitled to reimbursement by Vessel Party for any

such costs and expenses. The Terminal Operator, or its delegate, will keep the Vessel Party advised of the nature and results of any such measures taken and, if time permits, the nature of the measures intended to be taken.

- The foregoing provision shall however not absolve the Vessel Party from any liability as a result of pollution damage. For any oil pollution caused by Vessel, Vessel Master or crew, the Vessel and the Vessel Party and Charterers shall protect, defend, indemnify and hold harmless TOTAL E&P ANGOLA Block 32 Limited from and against any loss, damage, liability, suit, claim or expense arising there-from, except where the said oil pollution is caused by the sole negligence of TOTAL E & P ANGOLA Block 32 Limited.

- **Drug and alcohol policy**: the Vessel Party warrants that it has a policy on drug and alcohol abuse ("Policy") applicable to the Vessel which meets or exceeds the standards in the Oil Companies International Marine Forum Guidelines for Control of Drugs and Alcohol Onboard Ship, dated June 1995 (OCIMF). The Vessel Party further warrants that this Policy will remain in place for as long as the Vessel Party continues to use the Terminal and is required to comply with the Terminal Regulations and Procedures and that they will exercise due diligence to ensure compliance with the Policy. No alcohol should be consumed on the Vessel during the offloading operation and no alcohol given to any of the boarding crew or visiting officials.

- **Customs compliance**: the Vessel Party warrants that the Vessel fully complies or holds necessary waivers with respect to all applicable REPUBLIC OF ANGOLA customs and regulations in effect as of the date Vessel berths.

- **ISPS compliance:** Vessels shall comply with security measures implemented through the REPUBLIC OF ANGOLA regulations and ISPS code.

- **International conventions:** in addition to the Terminal Regulations and Procedures, the Vessel must also comply with the following regulations, guidelines and best practice, including but not limited to:

  - COLREG "International Regulations for Preventing Collisions at Sea", 1972, as amended.

  - SOLAS "International Convention for the Safety of Life at Sea", London 1974, protocols of 1978, 1988 as amended.

  - MARPOL "International Convention for the Prevention of Pollution from Ships", London 1973, 1978 protocol as amended.

  - STCW "Convention on Standards of Training, Certification and Watch keeping for Seafarers" 1978 as amended.

- OCIMF and ISGOTT guidelines.

- **Navigation:** the Vessel Master and/or Vessel Party shall at all times be solely responsible for the proper navigation and safety of the Vessel and her crew.

- **ISM code:** the Vessel shall upon request, provide a copy of a current valid Safety Management Certificate for the Vessel together with a copy of the current, valid Document of Compliance for the operator of the Vessel issued pursuant to the ISM Code.

- **Inert gas system**: all crude oil tankers are required to be fitted with an Inert Gas System ("IGS"), regardless of cargo aboard or cargo to be loaded and will not be permitted to berth unless the IGS is fully operational, capable to deliver inert gas with an oxygen content of not more than 5% and all cargo tanks are inerted with an oxygen level at or below 8%.The testing of the oxygen content in the tanks may be perform on arrival by the Terminal representative. Positive inert gas pressure must be maintained on all cargo and slop tanks throughout the transfer operation. Manual gauging/sampling of Onboard Quantity ("OBQ") or Remaining on Board ("ROB") shall be accomplished per API MPMS Chapter 17.2. If the IGS fails or the oxygen content in tanks is higher than 8 %, the berthing operation or the cargo transfer operation must be terminated immediately and the Vessel may be ordered to clear the berth until the IGS is fully operational and tanks are inerted to the pre arrival condition. Costs and time associated with Vessel movement for IGS repair will be for the Vessel Party's account. The use of temporary or substitute equipment or procedures to correct IGS malfunctions must be accepted by the Terminal prior to re-admittance to the Terminal, or for continuation of Vessel loading at the Terminal. The Terminal Operator will not be responsible for time lost as result of the Vessel not complying with the above provisions and any Vessel time lost as a result of the Vessel not complying with the above provisions shall not qualify as used lay-time or as time on demurrage.

- The Vessel Party and the Vessel Master hereby expressly waive any right they may have under international convention or applicable law to abandon the Vessel or its wreck within the Restricted Area. In such an event, the Vessel Party and the Vessel Master undertake to immediately remove the Vessel or refloat and remove its wreck from the Restricted Area at their own expense.

- The Mooring Master or the Terminal representative may refuse to accept for berthing, loading, or may suspend or delay the berthing of, the loading of, or may not moored the Vessel when weather and/or sea state conditions and/or the Vessel do not comply with these Terminal Regulations and Procedures. Where there is a disagreement between the Vessel Master and the Mooring Master or Terminal representative as regards compliance with these Terminal Regulations and Procedures, TOTAL E&P ANGOLA Block 32 Limited and the Charterer of the Vessel shall be immediately contacted to ensure a speedy resolution of such dispute.

- **Objects overboard**: any object which is dropped or falls overboard and which is a danger to the oil installation and vessels navigation must be declared to TOTAL E&P ANGOLA Block 32 Limited who shall in turn, where necessary inform the relevant authorities in REPUBLIC OF ANGOLA. The Vessel Party shall immediately, at its own expense, signal and mark out any items which it has allowed to fall overboard during the Vessel stopover inside the Restricted Area. The Vessel Party shall at its own expense raise and remove such items, within 60 days from receipt of a notice from the relevant authorities in REPUBLIC OF ANGOLA or from TOTAL E&P ANGOLA Block 32 Limited requiring it to do so. Should the Vessel Party fail to implement the obligations provided above, TOTAL E & P ANGOLA Block 32 Limited shall be entitled to act as substitute for the Vessel Party, and to perform the obligation or engage a third party to do so. In such event, charges thus incurred by TOTAL E & P ANGOLA Block 32 Limited, including third party costs and TOTAL E & P ANGOLA Block 32 Limited own direct and verifiable costs shall, without prejudice to any claim for damages, be reimbursed by Vessel Party, or deducted from any sums due or owing to or which may become due or owing to the Vessel or the Vessel Party by TOTAL E & P ANGOLA Block 32 Limited. The fact that a sunken item is insured or has been abandoned shall not relieve the Vessel Party of its obligations under these Terminal Regulations and Procedures.

  Vessel Party shall, with due diligence and to the best of its ability, implement any orders which TOTAL E&P ANGOLA Block 32 Limited may give with respect to removal of any items fallen overboard.

- Disposal of garbage, victual, domestic and any operational waste overboard is strictly prohibited.

4.2 LIABILITY

- The Terminal Operator, or its delegate, shall not be liable and shall be released from liability to the Vessel or the Vessel Party for any direct, indirect or consequential losses or damage or for any injury or delay resulting from any assistance, services, advice, information or instructions given or tendered to any Vessel, whether by way of tugs, pilotage, berthing services or the provision of navigational facilities or otherwise, whether or not such losses or damage are due in whole or in part to any act, neglect, omission or default on the part of Terminal Operator, or its delegate.

- The Terminal Operator, or its delegate, makes no representation or warranties, express or implied, that the Terminal Restricted Area, berths, premises, facilities, property, gear, craft and equipment provided are safe and suitable for Vessels permitted to use the same. The Terminal Operator, or its delegate, shall not be liable to the Vessel Party and/or any of her crew for any and all direct or indirect losses (including loss of cargo whether such cargo is on board the Vessel or is in the course of being loaded or discharged), damage, injury or delay howsoever such loss, damage, injury or delay is caused and whether or not it is due in whole or in part to any act, neglect, omission or default on the part of any servant, agent or

contractor of the Terminal Operator, or its delegate, or by any fault or defect in berths, premises, facilities, property, gear, craft or equipment of any sort at the Terminal.

- The Terminal Operator, or its delegate, shall not be responsible for any loss, damage or delay directly or indirectly caused or contributed to by or arising from strikes, lock-outs or labour disputes or disturbances whether the Terminal or its servants, agents or contractors are parties thereto or not.
- If in connection with or by reason of the use by any Vessel, of any berth or of any part of the Terminal's premises, or of any gear or equipment provided by or on behalf the Terminal or of any craft or of any other facility or property, of any sort whatsoever, belonging to or provided by or on behalf of the Terminal any damage is caused to any such berth, premises, gear or equipment, craft or other facility or property, from whatsoever cause such damage may arise, and irrespective of whether or not such damage has been caused or contributed to by negligence of the Terminal or of its servants, agents or contractors, and irrespective of whether there has been any neglect or default on the part of the Vessel or the Vessel Party, or in any such event, the Vessel and the Vessel Party shall hold the Terminal and the Terminal Operator, or its delegate, harmless from and indemnified without limitation against all related loss or damage sustained by the Terminal consequent thereon.
- The Vessel Master, the Vessel and the Vessel Party shall hold the Terminal Operator, or its delegate and its servants harmless from and indemnified without limitation against the following, whether or not due in whole or in part to any act, neglect, omission or default on the part of the Terminal, the Terminal Operator, or its delegate its servants or agents:
    - All and any actions, claims, damages, costs, awards and expenses arising whether directly or indirectly out of any loss, damage, injury or delay of whatsoever nature suffered by, or occasioned to, any third party and caused or contributed to whether directly or indirectly by the Vessel or any part thereof or by any substance or any other servant or agent of the Vessel Party.
    - All or any damage, injury, delay or loss of whatsoever nature caused to the Terminal or its servants and caused or contributed to whether directly or indirectly by the Vessel or any part thereof or by any other servant or agent of the Vessel Party.
- The services of the Mooring Master and/or the Mooring Master Assistant are made available by the Terminal Operator, or its delegate, to the Vessel Party upon the express understanding and condition that when either the Mooring Master, the Mooring Master Assistant and/or their team on board the Vessel for the purpose of rendering assistance to such Vessel, are placed under the direction and control of the Vessel Party, and the Terminal Operator, or its delegate, shall not be liable for any damage, loss or injury which may result either from the provision of any assistance or advice by either the Mooring Master, the

Mooring Master Assistant and/or any member of their team while aboard or in the vicinity of such Vessel or from their failure to provide any such advice or assistance. Therefore the Terminal Operator, or its delegate shall be indemnified by the Vessel Party for any such damage, loss or injury incident to claims, demands or causes of action brought by or on behalf of any third party.

These conditions shall be governed by and construed in accordance with the laws of England and subject to the exclusive jurisdiction of the English High Court.

5. TERMINAL INFORMATION

5.1 GENERAL INFORMATION

- Operator of the Terminal by delegation:

  A consortium comprising SAIPEM LUXEMBOURG SA (Sucursal) DE ANGOLA and INTEROIL ANGOLA LDA.

- Registered address:

  Rua Rodrigo Miranda Henriques 15,

  Bairro Maculusso C.P. 6328

  Luanda, ANGOLA

- Time zone: **GMT +1 hour** throughout the year.

5.2 MARINE TERMINAL LOCATION

5.2.1 Description

The KAOMBO complex comprises:

- Two FPSO, Kaombo Norte and Kaombo Sul which are two converted sister vessels with following main characteristics:

LENGHT O.A. [m]	346.08
LENGHT B.P. [m]	319.00
BREADTH [m]	60.00
DEPTH MLD	30.40

- These FPSOs are anchored to the bottom via a turret located at the forward part, with 9 anchoring lines.

- They are equipped with a 95m height flare at the forward part and a helideck at the stern.
- The loading point is in Tandem mode at the stern for each FPSO.
- Some drilling units according to the drilling program on the site.

5.2.2 Location

Kaombo fields are located approximately 150 km from the coast of the Republic of Angola, in the Block 32. The Kaombo Project encompasses the development of the Gengibre, Gindungo, Caril, Canela, Louro and Mostarda West fields. The water depth over Kaombo area ranges from 1400m to 2000m. The development of these fields is based on a dual hub concept.

The Kaombo Norte FPSO location is:

L –07°14’07” South G – 011°17’20” East (Geodetic datum WGS 84)

It should be noted that the distances and coordinates given in this document are approximated and should not be taken as being sufficiently precise for navigational purposes. Reference should therefore be made to the appropriate Hydrographic Office publications, Admiralty publications and official charts for the purposes of obtaining navigational information.

See Appendix for Terminal layout and restricted area. HOLD[1]

5.3 DOCUMENTS

As a guideline only, the following documents contain informations for the navigation of Vessels on the Block 32 and nearby areas:

- Nautical charts and publications for the area and terminal, of largest scale, latest editions and duly corrected as per latest notice to mariners.
- Chart no. 6666 and 3357 issued by the Service Hydrographique of the French Navy.
- Chart no. H.O. 2203 issued by the Hydrographic Office of the American Navy.
- French nautical instructions -volume 5 - series C Africa-West Coast, volume 2.
- Book of fog lights and signals, series C.
- AFRICA PILOT - vol. II, published by the Hydrographic Department, Admiralty LONDON.
- Charts nos. 305-301, published by the Portuguese Instituto Hidrografica, LISBON.

5.4 WAITING AREA COORDINATES

Vessels calling to load / waiting for handling at Kaombo Norte Terminal shall wait, in a water depth of 1,600 metres, inside a circle centered 7 Nautical Miles North from the FPSO with following characteristics:

- Center location:
  - Longitude: 07° 06' 46" South
  - Latitude: 011° 17' 03" East
  - Circle radius: 2 nautical miles.

5.5 MARINE TERMINAL AREA OF OPERATIONAL RESPONSIBILITY (RESTRICTED AREA)

The Marine Terminal Area of Operational Responsibility (Restricted Area) is a circle of 8 Nautical Miles radius around the center of location defined below where KAOMBO NORTE Terminal operates and is responsible for prevention of environmental pollution.

- Center location:
  - Longitude: 07° 12' 48" South
  - Latitude: 011° 17' 02" East

This area is a Navigation Restricted Area.

The Marine Terminal Area of Operational Responsibility is a compulsory Pilotage area. The Vessel Master shall not enter this zone without a Mooring Master on board except for proceeding to the waiting area; where the Vessel Master shall only proceed with permission from the Mooring Master via VHF as per Waiting Area Plans (see Appendix HOLD[1]).

After permission from the Mooring Master via VHF, the Vessel Master shall proceed from the waiting area to the Pilot Boarding Ground located :

L-07° 12' 12" South G- 011° 17' 09" East (GEODESIC DATUM: WGS84)

Access to the Restricted Area is authorized to assistance vessels working for KAOMBO Terminal.

Repairs and immobilization of the propulsion and steering systems while in the Marine Terminal Area of Operational Responsibility is prohibited.

5.6 BEACONING HOLD[2]

- **Beaconing of the FPSO**

The most remarkable mark of the FPSO is the mast flare at 95 m above the FPSO main deck.

KAOMBO NORTE FPSO is fitted with 4 marine lanterns. These warning lights are installed at each of the 4 corners of the FPSO. Main characteristics of the lights are:

- Colour : RAL 1018 clear,
- Effective intensity : 1 400 candela,

When visibility is reduced, the FPSO emits the anti-collision sound signals as laid down in international regulations. Main characteristics of the omni-directional foghorn are:

- Sound pressure : 134 dba at 1 meter,
- Range : 2.0 nautical mile
- Sound frequency : 850 Hz
- Character : Morse code U every 30 seconds

One RACON “N” signal is emitted on X band and S band Marine Radars with the following characteristics:

- X band (9.3 GHz – 9.5 GHz), sensitivity: <-40 dBm
- S band (2.9 GHz – 3.1 GHz), sensitivity: <-40 dBm
- Tracking accuracy: ± 3.5 MHz for pulses < 0.2 µs ;
- ± 1.5 MHz for pulses > 0.2 µs
- Response delay: < 0.7 µs
- Scaling of responses: Proportional
- Configurable active/idle periods: From 15 to 60 s
- Maximum Output RF power @ antenna port: 1W

Aviation Obstruction lights in telecom tower :

- Obstruction light type - Effective intensity : 10 candela (7x)
- Obstruction light type - Effective intensity : 200 candela (1x)

- **Beaconing of the flexible floating hose**

The flexible floating hose is 380 meters long around the FPSO stern and marked with 06 winkerlight (flashing lights).

- **Beaconing of the Meteo Buoy**
- **Beaconing of the Standby Mooring Buoy**

5.7 ENVIRONMENTAL CONDITIONS

The general climate in the area of the KAOMBO NORTE Terminal is characterized by the following:

- The rainy season predominates in February, March and April.
- The dry season is cooler and lasts 2 to 3 months, from June through to August.

Air temperature :

- During the rainy season, the air temperature varies from 23°C to 30°C with a relative humidity of approx. 91%.
- In the dry season, the temperature varies from 18°C to 22°C with a relative humidity of approx. 86%.

Sea temperature :

- At the surface, the sea temperature varies from 30°C at the beginning of the year to 20°C in July. Salinity ranges from 28 to 35 g/l.

Visibility :

- During the rainy season, particularly in February, March and April, visibility may be limited to half (½) a nautical mile.

Winds

- The prevailing winds are southerly, generally less than 15 knots on average.
- The strong winds are mainly easterly, or from SSE associated with tornadoes and do not blow for long (70 km/hr).

Swell and Waves

- The prevailing swell direction is SSW (210), with an average height varying from 1.5 to 2.5 metres, a period of 12 seconds and the waves generated by the local winds rarely exceed 2 metres. Swell is stronger from May to October and maximal 2 to 3 days before the spring tide.

Currents

- Currents in the Block 32 area vary considerably in strength and direction, but the prevailing set of current is NNW-wards with a surface speed which may be in excess of 2 knots.

See additional meteocean datas in appendix HOLD [1]

5.8 WEATHER OPERATING CRITERIA

Mooring, hose connection and the operation of the Terminal Assistance Vessels are weather dependent:

- Mooring and hose connection operations can be conducted at sea state up to Hs: 2.00m. and wind speed up to 22 knots.
- Cargo transfer can be conducted at sea state up to Hs:3.1 m and wind speed of 30 knots.
- On the advice of the Mooring Master, cargo operations will be suspended and Vessel may vacate the berth when environmental conditions are considered to exceed the normal operational limits or floating hose string normal condition of use.
- In any case, when a hawser load of 150 tonnes is continually exceeded, the loading operations will be suspended and the floating hose string disconnected. Depending on the environmental conditions and behaviour of the hose string and export Vessel, the Vessel may vacate the berth on the advice of the Mooring Master.

- Berthing and residence limits are given below:

Berthing limits

Current		Wind speed		Waves Hs
m/s	kn	m/s	kn	m
1.0	2.0	11	22	2.0

Residence limits in tandem

Current		Wind speed		Waves Hs
m/s	kn	m/s	kn	m
1.0	2.0	15	30	3.1

5.9 LOADING CONDITIONS AND REQUIREMENTS

KAOMBO NORTE FPSO Terminal normal loading station is Tandem mode Bow to Stern :

- The Terminal can accommodate Tankers of size up to VLCC on First or Second Port.
- Conventional trading Vessels for local cargoes of 950,000 nbbls @60°F +/-5%
- The Vessel maximum Summer deadweight at the loading point is 350,000 metric tonnes.
- Nominal flow rate is: 7,100 m3/h

5.10 CHARACTERISTICS OF THE LOADING POINT

The Tandem loading points consists of:

- One tandem export manifold;
- One Methanol bunkering manifold;
- One Diesel Oil tandem bunkering manifold;
- One hose lifting mean;

- One export line;
- One mooring hawser connected to the hawser handling winch.

The Crude Oil export manifold is located on the stern of the FPSO at port side.

For Methanol Bunkering, the manifold is located in front of accommodations at starboard of the FPSO.

For Diesel Oil Bunkering, the manifold is located in front of accommodations at starboard of the FPSO.

The vessels will be moored by their bow to the stern of the FPSO.

Characteristics of export line

A floating hoses line links the FPSO export manifold to the Vessel manifold for loading. For crude oil tankers it consists of:

- 1 x Hose Protection System 20" (ERC) with valves
- 1 x 1st off lifting spool piece 20" with lugs
- 1 x First off FPSO ISOLA S TR T C 20"x35ft
- 2 x 2nd and 3rd off FPSO ISOLA S TR T C 20"x40ft
- 1 x 4th off FPSO ISOLA MG DIFLEX T C EB 20"x40ft
- 1 x Back-up spool piece 20" with lugs
- 24 x Main line ISOLA G T 20"x40ft
- 1 x Breakaway Coupling MBC 20''
- 2 x ISOLA G TAIL T Elect Cont 20"x40'ft
- 1 x ISOLA G TAIL T Elect Discont 20"x40ft
- 1 x ISOLA GT TANKER T20"x30ft
- 1 x Butterfly valve 20"
- 1 x Short spool piece 20"
- 1 x Cam-Lock 20"
- 1 x Light weight blind flange 20" ANSI 150

The tanker rail hose is fitted with a snubbing chain, a pick-up chain, a marking buoy and a pick up line.

See General Arrangement : Appendix 1.

Characteristics of Methanol line

6'' floating hose of 355.7 meters length fitted with an ERC.

The hose is stored on shore on a reel and is sent offshore when needed by a Supply Vessel.

See General Arrangement : Appendix 2.

Characteristics of D.O. tandem bunkering line

6'' floating hose of 355.7 meters length fitted with an ERC.

The hose is stored on shore on a reel and is sent offshore when needed by a Supply Vessel.

See General Arrangement : Appendix 2.

Characteristics of the mooring hawsers of the loading point.

The mooring hawser is provided by KAOMBO NORTE Terminal. The Vessel should therefore be ready to heave 1 mooring line in the fairlead. The mooring line chiefly consist of:

- One FPSO chafe chain with a cylindrical support buoy and its chain. Characteristics of the chafe chain are, Dia 76 mm 10 m approx. long
- One BL3 Hawser 21'' single leg, length 100 m, NWBS 615 T
- One chafe chain tanker side, held by a cylindrical support buoy and its chain. Characteristics of the chafe chain are: chain ''A'' as per OCIMF, 10 m approx. long, Dia (76mm).
- To facilitate heaving, the mooring line has a messenger rope 80 mm diameter PP MBL 75T L110m

The messenger ropes are passed to the Vessel by the Work boat. The Vessel must prepare a messenger line (200 meters length minimum) to bring the messenger rope aboard.

The Tandem Mooring system is located on the stern of the FPSO, on her Sunken deck and consists of:

- 1 off Horizontal Hawser Reeler

- 1 off 250T SWL Hawser Hook
- 1 off spooling device
- 1 off Smit Bracket
- 1 off messenger line motorized reel
- 1 off Closed Chock (Panama Chock)
- 1 off 200T SWL Chock (Fairlead)
- 1 off Local Control Panel for load monitoring and remote release
- 1 off Warning Light and Siren Stand
- 1 off Mooring Hawser
- 1 off FPSO chafe chain + 1 off Shuttle tanker chafe chain
- 1 off Hydraulic Power Unit (below deck)
- 1 off Unit Control Panel
- 1 off Cargo Control Room Unit (for monitoring)
- 1 off PCS Interface Unit

See Appendix for detailed Tandem Mooring and floating hose arrangement HOLD[1]

5.11 DESCRIPTION OF THE BERTHING AID EQUIPMENT

The Mooring Master boards the Vessel with portable berthing aid equipment. Data are displayed on the Mooring Master telemetry portable unit, on the tug and in the FPSO CCR.

The Vessel has to provide facilities to power supply (functionality to be defined) for the berthing aid equipment.

The tanker and tug graphical display will provide the following data:

- Navigation information:
    - Tanker information: heading (NNN.N degree), rate of turn (NNN.N degree/min), course over ground (NNN.N degree), speed over ground (NN.N kts), acceleration / decelaration indicator (↑ or ↓ or -),
    - FPSO information: heading (NNN.N degree), rate of turn (NNN.N degree/min), course over ground (NNN.N degree), speed over ground (NN.N kts) ,

- Tanker / FPSO relative information: o Angle of tanker approach (NNN.N degree)
  - Relative angle of tanker (NNN.N degree),
  - Relative speed (NNNN cm/s),
  - Range: distance from tanker bow to FPSO stern (NNNN meter),

- Environmental information:
  - Sea current speed (NN.N kts) and direction (NNN degree) for different depths,
  - Wind speed (NN.N kts) and direction (NNN degree),
  - Air temperature (NN °C) and relative humidity (NNN %),

- Mooring and product real time and past information:
  - Hawser tension (NNN tons)
  - Hook position: opened, closed
  - Product temperature (°C)
  - Product pressure (barg)
- Technical and alarm information:
  - GPS positioning status,
  - Satellite status,
  - Jack knife alarm (activated when FPSO and Tanker are connected and their relative angle exceed a configurable threshold),
  - Short distance alarm,
  - High distance alarm,
  - Tandem Mooring - Hawser tension Alarm / Low alarm,
  - Tandem Mooring - Hawser tension Alarm / High alarm,
  - Tandem Mooring - Hawser tension Alarm / Danger High High alarm,
  - Tandem Mooring - Hawsers Release alarm,
  - Tandem Mooring - Trip Status alarm,

- Tandem Mooring - Load Monitoring Disabled alarm,
- Tandem Mooring - Load Cell Fault alarm,
- Tandem Mooring - General alarm.

The following information will be presented graphically:

- - FPSO shape real time position and excursion,
- - Limiting circles on FPSO tandem mode of configurable distances,
- - Tanker shape real time position,
- - Tanker past positions,
- - Tanker forecasted future positions (forecast based on measured tanker speed and rate of turn),
- - Tanker course and speed over ground,
- - Shape of tug (tug position and heading given by AIS receiver),

The event list and alarm history can be accessed.

The screenshoots of software application are given below as an example. The user interface is customized to the requirement stated in this document.

5.12 MARINE BREAKAWAY COUPLING

In order to minimize the volume of oil spilled in an emergency situation, the floating hose string is fitted with a double closure Marine Breakaway Coupling (MBC).

The device is designed to disconnect the floating hose string automatically and to seal the annulus of the hoses from both ends simultaneously in the event of accidental separation due to axial overload exceeding 54 tonnes, caused by an emergency such as the Vessel moving off after breaking the mooring hawser or the floating hose inner pressure surge exceeding 25.4 bars +/-10 %(static conditions).

5.13 CARGO INFORMATION HOLD[3]

6. COMMUNICATIONS

6.1 TERMINAL CONTACT HOLD[4]

- Good communications between the KAOMBO NORTE, Vessel and Assistance Vessels on site are essential for safe and efficient operations.

- KAOMBO NORTE is equipped with communication facilities which give capability to maintain 24 hour contact. Refer to Section 3.2 of these Terminal Regulations and Procedures.

Contact with the Terminal is possible through the following official means:

- VHF continuous radio watch:
- IMMARSAT Telephone:
- Telephone:
- Fax :
- Telex :
- e-mail :
- SSB (BLU) as back-up of VHF, fixed equipment, continuous watch:

All Pre-arrival messages from the vessel shall be addressed both to the vessel consignee (local agent), TEPA and KAOMBO NORTE by email at the following address :

TEPA :

KAOMBO NORTE :

Following contacts shall be put in copy by email of all ETA, pre-arrival messages or notice of deficiencies :

- Email 1
- Email 2
- Email 3

6.1.1 Radio Telecommunication with the Assistance Vessels

Assistance Vessels are fitted with the communication equipment listed here below. These equipment should be tested prior each operation:

- VHF marine equipment
- SSB (BLU) as back-up of VHF
- Telephone and Fax communication through UHF radio links provided by KAOMBO NORTE

6.1.2 Radio Telecommunication with the Drilling Rigs

Drilling Rigs are fitted with same equipment as above.

6.1.3 Radio Telecommunication with Life Boats, Fast Rescue Craft and Work Boat

Life boats, Fast Rescue Craft and Work Boat are equipped with all standard required marine safety communication system.

6.2 INFORMATION TO PORT AUTHORITY

Vessel Masters are hereby advised that, in addition to the communication that they are required to have with KAOMBO NORTE, the Vessel's shipping consignee is solely responsible for furnishing the Ports Authority with information relating to its operations at KAOMBO NORTE.

6.3 PRE-ARRIVAL CHECKS

Five days before ETA to KAOMBO NORTE, following tests shall be conducted on board and any deficiency reported to the Terminal within the pre-arrival message through the Vessel consignee who will notify TOTAL E&P ANGOLA Block 32 Limited of the following:

- Fire fighting test
- Inert gas system including main IG line mast riser and PV breaker and PV valves on each cargo tank.
- Cargo valves operation including position indicator
- Gas detection alarm
- High level alarm in tanks and pump room bilges
- Percentage of O2 in cargo tanks less than 8%
- Deck cranes
- H2S content of cargo tanks
- Mooring lines status

6.4 NOTICE OF ARRIVAL

The Vessel Party shall notify the Terminal and the Vessel Scheduler by fax and/or e-mail of the estimated time of arrival ("ETA") of the Vessel, including maritime position and vessel current speed. Such notification must be received by the Terminal at least seven (7) days in advance of the ETA. Accordingly, the Vessel Party shall notify the Terminal of the ETA ninety-six (96) hours, seventy two (72) hours, forty eight (48)

hours, thirty-six (36) hours, twenty four (24) hours, twelve (12) hours and six (6) hours respectively before Vessel's expected arrival date and time.

The Vessel shall provide the answers to pre-arrival message with the first ETA as per § 6.6 at least seventy two (72) hours prior arrival.

In the event that a Vessel's departure from a previous port takes place within any of the notification deadlines, the ETA will be communicated on departure from such previous port. Should the expected arrival hour change by more than eight (8) hours following the ninety six (96) hours, seventy two (72) hours and forty eight (48) hours arrival notices or by more than two (2) hours following the thirty-six (36) hours, twenty-four (24) hour and twelve (12) hours arrival notice, Vessel Master shall immediately advise the Terminal and their consignee of such change.

Vessel Party understands that insufficient or inaccurate ETA messages can cause delays at the Terminal and therefore an acceptance by the Terminal of Notice of Readiness may be affected by such insufficiency or inaccuracy.

Upon receipt of the first pre-arrival message from the Vessel, the Terminal representative through the Vessel consignee will respond to the Vessel by advising on the preliminary requirements of the Terminal. Vessel Master shall fully comply with these requirements in order to facilitate Vessel turnaround and other formalities required by the REPUBLIC OF ANGOLA government.

If Vessel Master reasonably considers that his Vessel will not arrive at the Terminal at the scheduled loading window, he shall immediately advise the Terminal and his consignee of the likely delay.

If Vessel Master has not received authorization to tender the Notice Of Readiness in accordance with ETA noticies and upon arrival at the Terminal, he shall immediately advise the Terminal.

The Vessel shall call the Terminal as soon as it is in VHF-radio range of the Terminal (approx 4 hours before arrival) and communication with the KAOMBO Terminal should begin on international marine VHF channel 16 or 12 HOLD [4]. When radio contact has been established on these channels, further communication will be conducted on a mutually agreed channel.

As soon as the Mooring Master boards the Vessel and the Vessel is cleared by Government Authorities, the Mooring Master shall be the sole correspondent for all communications between the Vessel and the Terminal, except for the normal exchange between the Terminal and Vessel control rooms for data comparison during loading operation. Any other radio communications exchange between the Vessel and the Terminal shall be with the express permission of the Mooring Master, except in case of Emergency.

6.5 INWARD AND OUTWARD CLEARANCE

All Vessels shall comply with official inward and outward clearance in accordance with the General Regulations of Navigation and Mooring of Vessels for ships calling in Angola.

The following documents should be ready upon arrival:

(i)	General Declaration (IMO FAL Form 1)	4 copies
(ii)	Cargo Declaration (IMO FAL Form 21)	4 copies
(iii)	Ship's Stores Declaration (IMO FAL Form 3)	4 copies
(iv)	Crew Effects Declaration (IMO FAL Form 4)	4 copies
(v)	Crew List (IMO FAL Form 5)	7 copies
(vi)	Passenger List (IMO FAL Form 6)	7 copies
(vii)	Currency Declaration (Crew and Ship's cash)	4 copies
(viii)	Bunker Report	1 copy

If the Vessel is arriving partly laden, copies of all cargo documents are required for presentation.

6.6 PRE ARRIVAL MESSAGE

The initial ETA message must contain all the following information:

1. Ship’s name/ Flag / Call sign / IMO no
2. Previous ship’s name and building dates
3. INMARSAT numbers (tlx SAT C : phone / fax / e-mail address)
4. Name of Master / Crew list
5. Reference number of Vessel Security Certificate. Date of issuance, Issuer, period of validity.
6. Ship Security Level / SSO Name and position
7. Last Port of Call and destination

8. Local Maritime agent

9. Voyage number after leaving the terminal

10. ETA waiting area

11. Arrival displacement and draughts

12. Departure displacement and draughts

13. Quality and quantity of slops on board (indicate if load on top procedure to be followed for this loading)

14. If cargo is on board the Vessel, specify, a) Quantity, b) Type; c) where loaded.

15. H2S, Mercaptan and O2 % content in cargo tanks,

16. Manifold size and available reducers on board (terminal connection is 1 X 20")

17. Loading rate using one single 20 inch hose manifold connection at

- Initial loading rate
- Maximum loading rate
- Final topping rate

18. SPM Chain stoppers

- Number of stoppers
- Distance between Panama fairleads and stoppers
- Are stoppers aligned with fairleads and winches drums

19. Manifold area

- Manifold crane reach and capacity
- Are cleats and bitts available to secure cargo hoses? Precise SWL

20. SWL of towing bitts on aft upper deck

21. Confirm ship's in good order and operational

- Checks and tests as per terminal regulations §6.3
- Main engines and auxiliaries
- Tank heating coils sound and blanket
- Deck windlass (Anchors properly secured), winches cranes

22. Cargo request basis on API and Temperature given by terminal

23. Cargo loading plan

24. Vessel experience factor

25. B/L identifier (Alpha/SCAC code) if applicable

26. P&I Club and Oil Pollution Liability Insurance carrier.

27. Any other Special Requirements, Restriction or Impediment to the normal and seaworthy operability of the Vessel.

6.7 ISPS COMPLIANCE

In accordance with the requirements of the ISPS Code, all Vessels are required to declare their security status prior to arrival. This shall be in the form of an e-mail to the Terminal's Port Facility Security Officer (PFSO) clearly stating the following information:

(i) Security level of the ship

(ii) Synopsis of the last ten (10) ports visited

(iii) Crew list

(iv) Passenger list

(v) Security contacts of the ship's Company

- **PFSO contact HOLD[4]**

The contact details for the KAOMBO NORTE Port Facility Security Officer are as follows:

- Email:
- Copy to :
- Telephone:

6.8 BOARDING PARTY

The number of persons that shall board the Vessel on arrival may vary but as a minimum, the following persons shall be transferred from the Terminal to the Vessel for the operations:

(i) Mooring Master (KAOMBO NORTE representative)

(ii) One Mooring Master Assistant

(iii) One Custom Officer

(iv) One Port Health Officer (Port Authority representative)

(v) One Immigration Officers

(vi) Ship's Agent (1 person)

(vii) One or Two Cargo Inspectors

Throughout the duration of the loading operation, the Vessel shall be expected to provide accommodation and meals befitting the status of ship's officers for the following: Mooring Master, Mooring Master Assistants, the Shipping Agent and Cargo Inspectors. Single cabins for the Mooring Master and Mooring Master Assistant.

In any case, the Mooring Master will issue the list of persons to be accommodated in the final berthing instructions prior to Vessel's arrival.

Boarding and disembarking of the Mooring Master, Authorities, Cargo Inspectors and any persons from TOTAL E&P ANGOLA Block 32 Limited are under the entire responsibility of the Vessel Master.

The Vessel Master steers the Vessel to make a better lee to facilitate the boarding of personnel. The Vessel will be stopped without making way.

6.9 NOTICE OF READINESS (NOR)

After the Vessel has arrived at the waiting area, and is in all respects ready to proceed to the berth to commence the loading of the cargo, the Vessel Master or his consignee shall give the Terminal notice by fax, e-mail, radio or telephone that the Vessel is ready to load or discharge the cargo, berth or not berth. If verbal notice is given in the first instance, written confirmation shall subsequently be made within twelve (12) hours. NOR shall be in English.

Following contact shall be put in copy by email :HOLD[4]

- The Vessel's NOR is signed for and received by the Mooring Master upon boarding the Vessel.
- Acceptance of the NOR by the Terminal is subject to the Vessel's apparent readiness to moor and load.
- NOR whether previously accepted or not, shall not be valid and/or binding on the Terminal unless and until such time as there is confirmation that the Vessel, her tanks and equipment, are in proper condition and operation and ready to receive the cargo.
- On arrival, Vessel Master shall provide the following documents:
    - Loading Plan and procedures
    - Emergency plan
    - General lay out and deck piping
    - Safety plan
    - Record of pre-arrival checks as per § 6.3
    - Inert gas system drawings and manual

7. TANKER ENTRY AND HANDLING CONDITION

7.1 OPERATING DAYS

The Terminal will endeavour to handle Vessels on arrival during the laycan and in the hours of daylight, weather permitting. Berthing is normally not permitted at the Terminal at night and the Terminal shall therefore be closed between the hours of 15:00 and 06:00 local time.

There is no time restriction to unmooring, weather permitting.

However, under special circumstances, TOTAL E&P ANGOLA Block 32 Limited may decide with the agreement of the Mooring Master and the Vessel Master, to authorize approach and mooring between 15:00 and 06h00 local time.

7.2 WAITING ZONE

Vessels calling to load / waiting for handling at the Terminal shall approach the waiting zone from the North and contact the KAOMBO NORTE for instructions (see also § 5.4.1 Marine Restricted Area of Operational Responsibility)

7.3 APPROACH TO PILOT BOARDING AREA

- Vessel Masters nominated to load at KAOMBO NORTE are referred to sailing instructions and charts for the area as published by relevant Admiralty offices and are requested to familiarise themselves with the same.
- Vessels must receive the Terminal's permission to proceed to the waiting area and call Mooring Master for coordination of activities.
- Pilot services shall be carried out by KAOMBO NORTE dedicated Mooring Master. The Mooring Master station maintains a permanent watch on VHF 16 and 12. Hold[4]
- The Vessel will be met by the Mooring Master, one Mooring Master Assistant and two tugs at the Pilot Boarding Ground 1.5' North from the FPSO or otherwise instructed.
- The Mooring Master boards the Vessel with portable berthing aid equipment.
- At Mooring Master boarding area, a mooring tool box will be transferred from one Assistance Vessel (usually one of the ASD tugs) to the Vessel using the manifold crane.
- The Mooring Master will perform engine and steering tests before proceeding.
- Vessels calling at the Terminal must be equipped with accommodation ladder on the port side (or starboard on Mooring Master specific request) and leading aft. Boarding arrangement for Mooring Master shall be in accordance with SOLAS regulation and IMO resolution in force at the date of the call. At night the access area shall be adequately lit to provide for a safe approach and boarding.
- The portside cargo crane shall be readied to hoist onto the Vessel's deck the mooring and hose handling equipment baskets. The crane will be used for handling the connection of the cargo hoses after mooring. The crane "runner" should be plumbed midway between the rail and the manifold at the manifold centerline.
- The Vessel must have operative and ready for immediate use, bow and stern emergency towing equipment, as required by IMO.

7.4 APPROACH TO TERMINAL

- The Mooring Master advises the Vessel Master on navigational information such as current characteristics and emergency towing procedures. The Mooring Master will maintain communications with the KAOMBO NORTE, the tugs and other Assistance Vessels and ensure that the floating hoses are clear of the Vessels approach path using the service vessels assistance.

- The Mooring Master instructs the Vessel in accordance with the operational limits set up in § 5.7 and 5.8 (Weather operating criteria)
- The Mooring Master will inform the Vessel Master about loading operations and regulations which are peculiar to the KAOMBO NORTE, such as mooring equipment and procedures, Emergency Shutdown Procedures and actions in case of fire or oil spillage.
- While the Vessel is approaching, the Mooring Master Assistant is stationed on the forecastle of the Vessel during mooring and unmooring operations to assist the Mooring Master by reporting position approach data relative to the FPSO and to advise the Vessel's personnel in the mooring operations. The Mooring Master Assistant witnesses these operations and reports to the Mooring Master.
- The Vessel Master, a certificated Deck Officer and a competent Helmsman / Quarter Master must be on the navigation bridge.
- The duty crew on deck shall be as a minimum:
  - During berthing 1 officer,1 bosun and 3 AB
  - During connection 1 officer, 1 crane operator and 3 AB
  - During transfer 2 watchman

  The engine room shall be manned by a chief engineer and adequate technical personnel

  - The Mooring Master shall guide Vessel crew on the approach direction and speed to the FPSO based on the prevailing weather and environmental conditions.

Vessel's anchors must be secured in their hawse pipes at all times while the Vessel is within the Marine Terminal Area of Operational Responsibility

- In the present case of Tandem Configuration , the Vessel Master of a visiting Vessel should take note of the following peculiar constraints and equipment available at the Tandem loading station:
  - **Flaring at the bow**
  - **Emergency Release Systems:** the hawser can be released on request from FPSO side as well as the 20 inch crude oil floating hose activating the 20 inch ERC, or the 6 inch methanol discharge hose ERC or the 6 inches MGO discharge ERC, depending if we are off-loading Crude Oil or loading Methanol or MGO.
  - **Presence of the Helicopter landing area** on the stern of the FPSO. MM shall give more details about helicopter operations to Tanker Master during the tool box talk before Mooring.

7.5 BERTHING AID EQUIPMENT

- The Mooring Master boards the lifting vessel with portable berthing aid equipment.
- The number and characteristics of the Assistance Vessels and the mooring procedures will be given by the Mooring Master to the Vessel Master before proceeding to the loading post.
- As guidance, normal procedure will require two (2) tugboats which will be under Mooring Master instructions to assist in the berthing operations and will be available throughout the duration of the loading operation. One tug is connected at stern and the other stand-by as push-pull.
- The tugs will assist the Vessel during an emergency situation, which may occur on board the Vessel as a result of loss of propulsion or steerage, a fire and/or oil spills or other emergency situations.
- A Work boat with KAOMBO NORTE personnel will also be available to assist with handling of mooring ropes and cargo hoses.

7.6 MOORING

Mooring and unmooring operations, including tug line handling, are dangerous operations. It is important that everybody concerned is fully aware of the hazards and takes appropriate precautions to prevent accidents.

- The following mooring equipment shall be ready for use upon arrival at the Terminal:
  - On the forecastle, two heaving lines and two strong messenger lines of minimum 150 meters long which will be used to heave on board the floating pick-up line attached to the mooring hawsers.
  - On the poop deck, two heaving lines and two strong messenger lines of minimum 150 meters long must be ready to heave on board the towing wire.
  - A storage drum shall be used to heave the pick-up rope prior to connection of the chafing chain to the stopper. A warping end should never be used for this purpose. This drum should be able to take 150m of 24mm messenger and 150m of 80mm pick up line.
  - Proper power shall be available at all times on the forecastle and poop deck winches while the Vessel is at the Terminal.

- When the Vessel is at a convenient safe distance from the berth, allowing heaving-up the pick-up rope of the mooring hawser chafe chain, one of the forecastle messengers will be lowered into the water. The Work Boat should take the messenger line and connect it to the mooring hawser pick-up rope. The pick-up rope will then be heaved up on board the vessel.

Under no circumstances shall the messengers or mooring hawser chafe chain pick up ropes be used for heaving the Vessel onto or holding it to the berth

- Care should be taken when securing the chafing chain to the Vessel bow stopper to ensure that the mooring hawser stays outside and clear of the ship's fairlead.
- Berthing time is when mooring hawsers have been secured
- Once the Vessel is securely moored to the berth, the Assistance Vessels will remain assigned to assist the Vessel : normally, one tug on a towline from the stem of the Vessel with another tug in stand-by.
- While Vessel stays at the berth, the information about mooring hawsers tension should be advised by the Mooring Master.
- A crew member is to maintain continuous mooring watch on the forecastle throughout the time the Vessel is moored and report should the mooring hawser becomes slack and the Vessel closes the loading point.

7.7 UNMOORING

- The Mooring Master should agree the Unmooring Plan with Vessel Master.
- Unmooring shall commence if the transfer operation is completed, floating hose disconnected and lowered to the water.
- Once the load of the mooring hawser comes off, the chafing chain is released from the bow chain stopper and lowered to the water with the use of windlass or winch and then the Vessel will leave the berth by moving astern.
- Unmooring time is when the mooring hawser has been disconnected
- The Vessel will then be manoeuvred outside the Marine Terminal Area of Operational Responsibility.
- Subject to weather conditions, the vessel may be allowed to stay within the Marine Terminal Area of Operational Responsibility but outside the safe berthing area while cargo documents and/or departure formalities are being completed.

- The Mooring Master is required to stay onboard the Vessel until the Vessel leaves the Marine Terminal Area of Operational Responsibility, cargo document and formalities are completed and the Vessel is ready to proceed on voyage to its next destination.

7.8 HOSES HANDLING

- Hose connection operations start after the Vessel has been securely moored to the loading post. The Terminal's floating hose is fitted with a Camlock type coupling to fit 150 ANSI 20" size flanges. Therefore, Vessel must provide one 20" connection at the portside manifold, which must comply with OCIMF «Recommendations for Oil Tanker Manifolds and Associated Equipment». Vessels of dead weight less than 160,000 DWT will be provided with a 16” reducer.
- The Terminal is responsible for the good condition of the floating hose strings.
- The Mooring Master Assistant should agree the hose connection procedures with the Vessel Master or his deputy.
- Hose connection and disconnection is normally provided by the Vessel crew with guidance from the Mooring Master Assistant. The mooring gang on board the Work boat assists the Vessel crew for picking up the hose. The Vessel is required to provide the equipment and personnel for hose connection following the instructions of the Mooring Master Assistant. The assistance of a Vessel deck officer is compulsory.
- Vessel cargo crane will be used for floating hoses lifting onboard.
- After the hose is lifted above the level of the Vessel's rail, it is swung inboard. Belly chain connected between first and second hose-lengths is then used to guide the end of the hose towards Vessel's manifold and to rest on the manifold drip-tray. Once the hose end is secured inside the manifold drip-tray, Camlock is released and the blind flange is removed. The hose is then lifted to the appropriate flange of the Vessel's manifold, and then supported by properly positioned hose strops and/or belly band. Only after the hose is firmly fixed to the manifold, the hose-end butterfly valve may be opened and secured.
- Upon completion of the transfer operation, the reverse sequence shall be followed to disconnect the hose.

7.9 HOSE CRANE

- Vessel less than 160,000 DWT is required to provide a 15-ton SWL hose-handling crane, or derrick at the port manifold for the lifting and connection of the hoses.
- Vessel more than 160,000 DWT is required to provide a 20-ton SWL hose-handling crane, or derrick at the port manifold for the lifting and connection of the hoses.

Any Vessel that is not in compliance with the OCIMF - Recommendations for Oil Tanker Manifolds and Associated Equipment - may not be berthed at the Marine Terminal.

7.10 BALLAST HANDLING

- As prescribed by MARPOL 73/78, Vessels calling at the Terminal are required to arrive with a sufficient quantity of ballast or cargo and an adequate trim for safe manoeuvring to the loading post with the propeller fully immersed and a longitudinal trim not to exceed 1.5% of LOA (0.015L).
- Simultaneous de-ballasting and loading is required at the Terminal. Vessels must have the ability to load and discharge the ballast simultaneously in order to maintain not less than 30% of summer Deadweight (SDW) at all times.
- The Terminal has no dirty ballast reception or slop disposal facilities. Therefore, only clean ballast carried in segregated ballast systems (SBT) will be allowed for discharging to the sea within the Marine Terminal Area of Operational Responsibility.
- The Terminal reserves the right to inspect and perform laboratory analysis of the ballast water to ascertain its suitability for discharge to the sea. In any event, random sighting of ballast tanks will be carried out by the Mooring Master after boarding. Vessels arriving with ballast unsuitable for pumping to the sea may be rejected for loading, or required to keep that portion of their contaminated ballast on board.
- Terminal shall not be liable in respect of any claim connected with the inability of the Vessel to discharge ballast within the KAOMBO NORTE area.
- If possible, discharging of ballast water should be done in daylight hours.
- If discharge is to be done at night, appropriate lighting of the overboard discharge area must be provided.
- The overboard discharge area must be regularly monitored at agreed intervals, not exceeding 2 hours.

- The Mooring Master or the Mooring Master Assistant shall be advised when approximately 1 meter (3 feet) of ballast water remains in the tanks.

8. TERMINAL SAFETY REGULATIONS

8.1 GENERAL REQUIREMENTS

The following safety regulations are based on the specific application of ISGOTT “International Safety Guide for Oil Tankers and Terminals” and have been developed in an effort to reduce the possibility of an incident involving fire, explosion or other hazard.

Nothing in these Regulations will relieve Vessel Masters of their responsibility in observing the normal safety, fire prevention and security precautions.

The Mooring Master is authorized to request Vessel Masters to take additional measures to ensure safe operations should circumstances so require.

The Mooring Master is authorized to suspend transfer operations and remove the Vessel from the berth in the event of an infringement to safety regulations or if any other hazardous situation is encountered.

The Mooring Master, prior to commencement of berthing operations, will give Vessel Masters a copy of these Regulations (if not already available on board). The Vessel Master shall confirm to the Mooring Master in writing that he is familiar with the contents of the Terminal Regulations and Procedures, understands and accepts to comply with the laid down procedures and Regulations for operations at the Terminal before berthing can commence. See Appendix Hold[1].

Good communications between the Terminal, Vessel and Assistance Vessels on site are essential for safe and efficient operations. The Terminal is equipped with communications facilities which give capability to maintain 24 hour contact. Refer to Section 4 of these Terminal Regulations and Procedures.

8.2 SHIP/SHORE SAFETY CHECK-LIST

Upon completion of berthing and prior to the commencement of cargo loading, the Vessel/Terminal safety check-list will be completed following a joint inspection by the Mooring Master and a Vessel Cargo Officer.

The safety check-list is based on the recommendations of the "International Safety Guide for Oil Tankers and Terminals" (ISGOTT) and the Mooring Master must sign it for the Terminal and the

Vessel Cargo Officer on behalf of the Vessel, the Vessel Master and Vessel Disponent Owners. A copy of the Terminal check-list will be given by the Mooring Master.

8.3 EXTERNAL OPENINGS IN SUPERSTRUCTURES

All external doors, portholes, windows in the accommodation and opening leading from or overlooking the main deck to accommodation, machinery spaces (excluding the pump room if applicable) and forecastle shall be kept closed. Cargo Room, doors opening on to or above the main deck may be opened momentarily for access.

All ventilators through which vapour emissions may enter accommodation or machinery spaces shall be suitably trimmed. Window type air conditioning units shall be electrically disconnected.

Externally located air conditioning units, such as window or split air conditioning types shall not be operated during the stay at the Terminal.

It is essential that the accommodation is kept under positive pressure to prevent the entry of hydrocarbon vapours..The ventilation system should not be operated with the intakes fully closed, that is one hundred percent (100%) recirculation mode, because the operation of extraction fans in galley and sanitary spaces might reduce the atmospheric pressure in the accommodation to less than that of the ambient pressure outside.

The venting of the Vessel's tanks shall take place only through the Vessel's fixed venting system.

If for any reason there is a poor dispersion , which results in an accumulation of vapors on or about the decks of the vessel, loading shall be stopped or the loading rate appropriately reduced.

8.4 CARGO TANKS INSPECTION AND VENTING

During any of the cargo and ballast handling operations, sighting and ullage ports shall be kept closed unless required to be open for measuring and sampling and when agreed between the Vessel Cargo Officer and the Mooring Master.

All gauging, sampling, water dips and measuring temperatures, if required, shall be taken through special fittings provided for the purpose of maintaining integrity of the IGS system (closed loading system). This is a process required by the Terminal, and Vessels that do not have the necessary fittings shall not be allowed to berth.

Cargo tanks venting during loading operations will be permitted only through automatically operated venting systems purposely designed to rapidly dissipate hydrocarbon vapours away from the Vessel. High velocity vents shall be set in the operational position to ensure high exit velocity of vented gas.

The IGS system pressure shall be maintained above 200mm of water gauge.

8.5 BALLAST TANKS

Segregated ballast tanks may be opened before discharge of ballast is commenced, to allow the surface of the ballast to be inspected for contamination.

Segregated ballast tank lids shall be kept closed when cargo or ballast is being handled. Segregated ballast tank lids must be clearly marked to indicate the tank they serve.

8.6 HOSES CONNECTION

Flanges for ship-to-shore connections at Vessel's manifold should be in accordance with the OCIMF publication "Recommendations for Oil Tanker Manifolds and Associated Equipment".

Flange faces shall be clean and in good condition.

Precautions shall be taken to ensure that, prior the removal of blanks from Vessel, the section between the last valve and blank does not contain oil under pressure. Precautions must also be taken to prevent any spillage.

Reducers and spools shall be made of steel and be fitted with flanges that conform to ANSI B16.5, Class 150 or equivalent.

Manifold pressure gauges shall be fitted to the spool pieces/reducers on the outboard side of the manifold valves.

The Terminal reserves the right to fix a pressure gauge recorder at manifold connection.

Adequate lighting shall be arranged to cover the area of the ship-to-shore connection and any floating hose handling equipment.

All unused cargo and bunker connections shall have the valves lashed closed and shall be properly blanked by blind covers, fitted with a gasket and bolted with a bolt in every hole. Stem cargo pipelines (if fitted) shall be isolated forward of the aft accommodation by blanking or by removal of an approved spool piece.

Any part of a crude oil washing (COW) or slop transfer system, which extends into machinery spaces shall be securely blanked and isolated on the main deck.

8.7 FIRE FIGHTING PRECAUTIONS

The Vessel's fire fighting systems, including main and emergency fire pumps shall be kept ready for immediate use. Before operations commence, two fire hoses with jet/fog nozzles shall be laid out on the tank deck, connected to the fire main and tested as required by the Mooring Master. All fire monitors shall be unlashed and set in state of readiness. The two fire monitors immediately adjacent to the manifold shall be trained to throw foam onto the portside manifold area and ready for immediate use. Both Fire Post and Oil Spill Response (OSR) Post must be assigned at the portside manifold area.

The Vessel shall be solely responsible for and must be fully equipped with the capability to tackle any fire on board without assistance from the Terminal. However, the tugs and the other Terminal's Assistance Vessels are equipped with fire pumps and may assist any Vessel in fighting a ship fire, to the extent possible, in such an event.

If case of fire the Mooring Master and the Vessel Master must follow up Fire Instructions and procedures discussed in the Vessel/Terminal safety check-list available in the emergency procedures drawn up by the Vessel and the Terminal.

8.8 POLLUTION AVOIDANCE

No discharges whatsoever of any oil, oily water or any other liquids or substances that may cause pollution or discoloration of the sea are allowed while the Vessel is in the Terminal area.

During cargo loading operations all deck scuppers shall be effectively plugged and no oil or water, which can possibly contain oil, shall be allowed to escape overboard.

All Vessel’s cargo and bunker pipelines not in use must be securely blanked.

Any accumulation on deck of water may be periodically removed by transfer to a selected compartment (i.e. slop tank) on the Vessel using a portable pump or other appropriate device. Excessive rainwater may be released by controlled opening through one scupper-plug provided that:

- The rainwater is free of hydrocarbon or any other substance, which may pollute or may cause discoloration of the sea.
- The Mooring Master has granted permission to do so, and an entry of the time has been made in the log.
- A responsible member of the crew remains in attendance throughout the release of rainwater.
- The release is done in daylight or under excellent lighting conditions approved by the Mooring Master.

- The scupper plug is reinstalled tight as soon as the release of rainwater is completed.
- Manifold spill containment should be drained before transfer operations commence.
- Any leakage or spillage on deck or in the water area around the Vessel must be reported immediately to the Mooring Master.

Attention: should an oil spill occur during loading operations, all operations shall stop immediately and action taken to control and contain the spillage. Cleaning up operations shall be started immediately, and loading operations shall not be resumed until remedial action has been completed to the satisfaction of the Terminal.

8.9 CONDITIONS TO BE OBSERVED ON BOARD THE VESSEL DURING CARGO OPERATIONS

An officer of the vessel, who is fluent in English, is required to be on watch, normally in the cargo control room (CCR) at all times. The Mooring Master must be immediately notified of any deviation from the loading plan or other abnormal condition.

Minimum of 2 competent deck watches in UHF radio contact with CCR shall be assigned continuous watch on deck: one at the manifold and cargo deck area the other at the bow for monitoring the tandem mooring and reporting mooring conditions to CCR.

Attention: the tanker rail hose and floating string bend radius shall be monitored at all times to avoid hoses damage

The Vessel shall by day fly Flag "B" of the International Code, and by night display an all-round red light at the top of the highest of the masts.

Loading shall be stopped during an electric storm, when there is adverse weather or oil spotted on the water is approaching or is in the vicinity of the loading post.

If for any reason there is poor dispersion, which results in an accumulation of vapours on or about the decks of the vessel, loading must be stopped or the loading rate appropriately reduced.

Deck lighting must be such as to effectively allow the safe monitoring of loading operations during the hours of darkness.

Flood lights or other acceptable devices must be available on the Vessel to illuminate the water area around the Vessel so as to monitor the configuration of the floating hoses and immediately detect an oil spill.

All electrical devices (fixed or portable) must be intrinsically safe and of the type approved and maintained for use in hazardous areas.

Tanker propulsion must be made available at any time during the call.

8.10 OVERBOARD DISCHARGE VALVES AND SEA CHESTS

All overboard discharge valves and sea chests connected with the cargo systems, the bilge pump room and machinery spaces and sanitary discharges shall be closed and sealed closed by specially numbered seals while the Vessel is within the Restricted Area. Seal numbers shall be recorded in the Ship's Log Book. The seals may be removed only with the approval of the Mooring Master.

Last records of overboard valves water tightness shall be available to the Mooring Master on request.

The pumping of the engine room bilge and the disposal over side of oily waste is strictly prohibited.

Head pressure tank of hydraulic type of stern tubes shall be lowered to prevent leaking to the sea and a careful watch of this device shall be maintained while the Vessel is within the Restricted Area.

No object shall be thrown at sea in the Restricted Area. Any object which falls into the sea must be reported to Terminal Operator, or its delegate and recovered when considered requirement by Terminal Operator, or its delegate Such recovery shall be at the expense and risk of the interested parties.

Fishing is strictly prohibited in the Restricted Area.

8.11 SMOKING REGULATIONS

Smoking is strictly prohibited while at the berth except in designated areas, jointly approved by the Vessel Master and the Mooring Master during pre-loading Safety Meeting.

The designated smoking areas shall not exceed two sites.

Smoking notices specifying the designated smoking areas shall be exhibited in conspicuous places on board the Vessel.

The Mooring Master may unilaterally withdraw smoking approval if circumstances justify such.

The carrying and use of matches and lighters is prohibited on board the Vessel while at the Terminal except in the designated smoking areas.

8.12 GALLEY STOVES AND OTHER COOKING EQUIPMENT

The use of galley stoves and other cooking equipment shall be permitted, provided the Vessel Master and the Mooring Master agree to their use.

8.13 STATIONARY AND OTHER PORTABLE EQUIPMENT

Portable R/T sets, lamps and hand lamps or any other electrical or electronic equipment of non-approved type, whether mains or battery powered, must not be used on board the Vessel while at the loading post. Portable domestic radios, mobile telephones, radio pagers, calculators, photographic flash equipment any other battery powered equipment not approved as intrinsically safe shall not be used within hazardous areas.

During Vessel loading operations, radar/radio equipment shall only be used with the approval of the Mooring Master. At all times antennas for such equipment should be grounded. Satellite communications equipment may be used.

All supports, installations, boom cranes and equipment onboard should be grounded in accordance with requirements of ISGOTT.

8.14 MOVEMENT OF CRAFT

During loading operations, no craft shall be allowed alongside the Vessel.

Should a craft need to come alongside the Vessel (except dedicated Terminal Assistance Vessels), approval has to be given by the Mooring Master. Under such circumstances, cargo operations shall be stopped. The cargo operations shall be resumed only after the craft has left safe berth area.

8.15 WORK ONBOARD VESSEL

Repairs or maintenance activities of any kind shall be prohibited onboard the Vessel, berthed to the Terminal. A Vessel when at berth shall be maintained in a state of readiness for vacating the berth under full engine power at all times. The testing of any electrical equipment, including radar, radio and domestic electrical equipment is prohibited unless the permission of the Mooring Master has been granted.

Tank cleaning and gas freeing while in the berth is strictly prohibited.

8.16 PREVENTION OF SPARKING AND EXCESSIVE SMOKE

Soot blowing and excessive engine smoke is prohibited. Immediate steps shall be taken to eliminate any sparking from funnels/stacks. If such condition may not be corrected, loading might be suspended until the abnormal condition has been corrected. In extreme cases, Vessel may be removed from the berth.

8.17 EMERGENCY ESCAPE

Means for emergency escape shall be provided on both sides of the Vessel. For security reasons such means are to be stored at main deck level in such a manner as to be ready for expeditious use in an emergency. Such means shall be of adequate length to reach the water level at all times.

9. CARGO OPERATIONS

9.1 PERSONNEL RESPONSIBLE FOR VESSEL LOADING

OIM: is the highest authority of the Terminal, and the loading of vessels.

Mooring Master: an employee of the Terminal Operator delegate, The Mooring Master is the Terminal Representative on board the Vessel. The Mooring Master boards the Vessel on arrival and remains on board throughout the loading and departure operations. While on board the Vessel, he acts as a nautical advisor for the Vessel Master in navigating his Vessel. He assists the Vessel Master in the mooring and unmooring operations. He implements safety regulations on board, receives and signs protest letters issued by the Vessel. He presents the Master of the Vessel the commercial and technical documents related to the lifting. He ensures the coordination of the pumping operations by radio, VHF or telephone links with the Vessel and terminal, he supervises the de-ballasting operations. He takes part of the inspection of tanks and calculates the volumes received on board the vessel. He is in permanent radio contact with the Vessel's cargo officer in charge and the terminal. As Terminal Representative on board the Vessel, he directs and co-ordinates the transfer operations. In the event of an emergency within the Marine Terminal Area of Operational Responsibility, the Mooring Master is responsible for initiating Emergency Shutdown Procedure.

Vessel Cargo Officer: he is directly responsible for the safety of the Vessel's loading operations, he is fluent in English and maintains constant communications with the Terminal and follows the instructions of the Mooring Master. He is required to be on watch, normally in the Cargo Room, at all times.

Mooring Master Assistant: Under the supervision of the Mooring Master, he assists the Vessel crew in mooring, unmooring operations, connection and disconnection of hoses.

9.2 GENERAL LOADING REQUIREMENTS

Vessel cargo operations shall be executed strictly in compliance with ISGOTT.

Before operation commences the Vessel / Terminal safety check-list shall be filled and signed as per ISGOTT recommendations.

The Mooring Master and the Mooring Master Assistant will remain onboard the Vessel throughout the loading operation. One of these shall be on duty at all times.

The Mooring Master ensures that the Vessel Master has accurate information on which to make decisions involving operational safety. The equipment involved at the interface between the Vessel and the installation is under the control of the Terminal and, clearly, the Terminal is responsible for its safe condition.

All operations relating to Vessel movements, moorings and cargo loading operations are the responsibility of the OIM.

The Vessel Master is responsible for the safety of the Vessel at all times and for the safety-related decisions regarding the continuation of cargo loading operations.

The Vessel Master is responsible, for the provision of safe working practices for the Vessel's crew members involved in the operation, including the protection of the environment.

The Vessel Master is responsible for ensuring that the officers and crew onboard the Vessel are familiar with the additional equipment and procedures related to the SPM and tandem operations.

The Loading Plan should be agreed and signed by Vessel Master and Mooring Master before commencement of loading as per Vessel / Terminal safety check-list

Before loading commences, the primary and secondary (back up) communication system shall be established, agreed and tested.

Following main communications will be carried on as follows between Vessel and Terminal: identification of the Vessel, start loading, slow down, stop loading, emergency stop.

The Vessel Master is responsible for all valve openings and closures and for the safety of personnel, equipment and cargo on board the Vessel.

Under no circumstances shall the Terminal exceed the maximum loading rate agreed as per Loading Plan.

The maximum loading rate is 7,100 m3/hr limited because of the max metering rate.

A competent watch shall be posted for the whole period of loading operations to keep continuous radio contact with Vessel Cargo Officer, assigned to Cargo Room, to continuously patrol the cargo deck and monitor the Vessel manifold areas and the floating hoses configuration. A separate and dedicated deck watch, also in radio contact with the officer in charge, shall be continuously assigned to the Vessel's bow to monitor the FPSO stern, Vessel's bow and the mooring hawser.

Once the Vessel is ready to receive the cargo, the Mooring Master will instruct the Terminal to commence the loading with initial flow rate, not exceeding 2000 m3/h or a value as may be agreed between Vessel and Terminal. After oil flow is confirmed in designated Vessel's tanks and the integrity of the Vessel's cargo system is established, the loading rate can be increased up to maximum rate in compliance with the Loading Plan. At any time during the transfer operation, the rate can be reduced upon request of the Vessel Cargo Officer.

The Mooring Master or Mooring Master Assistant and the Terminal CCR should be notified whenever a change of tank necessitating valve manipulations is about to take place.

The loading rate shall also be reduced 1 hour 30 minutes, or thereabout, before the end of pumping in order to enable the Terminal to end the pumping (computerized stoppage sequence) in a safe manner.

Loading through pump room pipelines is prohibited and pump room shall be isolated by at least one block valve.

Throughout the loading, good communication shall be maintained between the Mooring Master, the Vessel Cargo Officer and the Terminal CCR, as well as the assigned Assistance Vessels.

Throughout the Vessel stay at the loading point, the Mooring Master and/or the Mooring Master Assistant remain in constant radio contact on VHF channels 16 and 12 Hold[4].

VHF marine radio channels 16 and 12 Hold[4] provide main and back-up radio communication.

It is the responsibility of the Vessel Cargo Officer to ensure that effective radio communication between the parties is confirmed at intervals of at least one hour.

In the event of a total breakdown of radio communications, cargo transfer operations shall be immediately suspended and shall not resume until satisfactory communication has been re-established.

The Mooring Master should be given sufficient advanced notice by the Vessel Cargo Officer when a reduction of loading rate is required, and at any other time when a change of established operation is about to be implemented. In such case, any amendments to the Loading Plan must be approved and signed again.

9.3 RESTRICTIONS FOR LOADING OPERATIONS

At no time and under no circumstances the Vessel valves will be shut down against the flow of oil. At least two (2) cargo tanks valves shall be fully open at all times until the final stage of topping off at which time the flow shall be reduced so that an accidental closure of valves would not cause a surge pressure that would exceed the Maximum Operating Pressure of the loading system.

Any change in valve configuration on the load circuit of the Vessel must be notified, before operation, to the Mooring Master who informs the Terminal so as to prevent any risk of over-pressure in the Terminal installations.

The Vessel Master (or his deputy) is responsible for all valve openings and closures and for the safety of the cargo on board the Vessel. In particular, during initial stage of loading and topping off, all valve openings and closures shall be supervised by the Vessel Cargo Officer.

9.4 INTERRUPTIONS IN TRANSFER OPERATIONS

Every effort must be made to carry out the loading operation in the safest possible manner. To ensure safe operations, the following situations shall guide the Mooring Master in taking decisions to interrupt the loading:

- Weather conditions:

  On basis of the simulations, maximum conditions for safe approach and residence time are determined and summarised in the tables §5.7

  Regarding these tables the following should be noted:

  - The final judgement whether manoeuvres can be executed safely is made by the Mooring Master.
  - The wave criterion during approach depends on the availability of the Work boats. In general this will depend on the sea state, wave height and wave period.
  - Strong environmental conditions up to 1.0 m/s current are possible; in such cases the approach and/or residence manoeuvre shall be aborted.

- Position of the Vessel relative to the FPSO in Tandem Configuration is given in appendix Hold[1]

- Any situation deemed to be detrimental to the safe continuation of the loading operation:

  - On the approach of and during electrical storms, heavy rainstorms or period of high winds.
  - If a fire occurs on the Vessel, , the FPSO or any craft in close proximity.
  - If there are insufficient competent personnel on board the Vessel to safely perform

loading and to handle any emergency situation.

- o If an oil spill occurs either aboard the Vessel or at sea anywhere within the Restricted Area.
- o If any other emergency situation arises, which in the opinion of the Vessel Master, the OIM or the Mooring Master, may constitute a potential hazard to either the Vessel or the Terminal's facilities.
- o In case any other vessel is within safe mooring operations area.
  - In any case, the Mooring Master shall issue a notice to the Vessel Master as well as the FPSO CCR of his intention to interrupt the loading.

9.5 END OF PUMPING / FINAL STOPPAGE

The order to stop pumping will be given by the Vessel Master or the Mooring Master or the Terminal Representative as agreed in the Loading Plan.

If the stop order is to be given by the Vessel Master, for example due to inability to fully load the nominated cargo, at least 30 minutes warning notice must be given beforehand to enable the Terminal to prepare for the final stoppage.

9.6 INSPECTION

- **Tank verifications after loading**
  - o Post-loading tank inspections, ullage, temperature, oil/water interface, trim/list measurements and all other verifications must be undertaken in the presence of the Mooring Master or Mooring Master Assistant, Cargo Inspectors and other interested parties, which may include REPUBLIC OF ANGOLA government officials.
  - o All measurements must meet the guidelines set out in the local regulations Guidelines and Procedures and the API Manual of Petroleum Measurement Standards Chapter 17 - Marine Measurement, and all applicable API Bulletins and Standard publications.
- **Export samples**
  - o Unless otherwise instructed by the formal nomination and documentation instructions, the

Terminal will place on board the Vessel two sealed cans of 2 litres each containing representative sample of the product loaded. Vessel Master will be required to acknowledge receipt of the samples delivered on board.

- **Commercial lifting documents**
  - As soon as possible after completion of loading, copies of the commercial documents shall be placed on board the Vessel by a Terminal representative. The documents placed on board shall be as formally requested by the owner of the cargo just loaded and as contained in the documentation instructions received earlier.
  - The various documents, including Bill of Lading, Cargo Manifest, Ullage Report, Certificate of Quality, Certificate of Quantity, Certificate of Origin and Statement of Facts will be completed and the relevant documents will be signed by the Vessel Master prior to departure. If required or requested by the Vessel Master, the Agent for the Vessel may sign the cargo documents on behalf of the Vessel Master.

10. METHANOL & DO SUPPLY IN TANDEM

Methanol & DO supply for the Terminal may be carried out using the Tandem Configuration.

10.1 SAFETY REMINDER FOR METHANOL & DO SUPPLY VESSELS

- Safety measures for tankers fitted with chain stopper (OCIMF) and inert gas

(i) Fill the check-list delivered by the Mooring Master to the Vessel Master on arrival

(ii) Proceed to Tandem mooring only after OIM authorization (via Mooring Master)

(iii) On arrival the Vessel Master must present to the Mooring Master the safety procedures and the records of tests for safety equipment including IG system

(iv) During the stay the washing of tanks by any means is forbidden

(v) During the stay the opening of any tanks is forbidden

(vi) Measurement and sampling must be done through closed loading system

(vii) The empty tanks must have been washed, emptied, purged and closed

(viii) The stripping of the tanks at the end of the offloading must be controlled by a competent officer

(ix) The inert gas must be used during the offloading

(x) All maintenance or handling works must be suspended during the offloading operation

(xi) The operations are stopped in case of lightning

(xii) The Vessel Master will pay particular attention to the electrostatic electricity risk and must ensure that equipment used on tanks are correctly earthed

- If the Vessel is not fitted with a OCIMF chain stopper

(xiii) The Vessel Master will provide the mooring arrangement of the Vessel to the Terminal as soon as the Vessel is chartered. The Mooring Master will prepare and present to the Vessel Master for approval the mooring procedure.

(xiv) A tool box talk will be executed by the Mooring Master to all personnel on board concerned with the mooring operation.

(xv) The Mooring Master will consider the meteorological conditions in order to allow sufficient time for connection and will postpone the mooring if he considers that the weather conditions are not suitable for safe operations.

If the Vessel is not equipped with inert gas system

(xvi) Particular attention will be paid to the distance and position of the tug boats during the offloading.

10.2 TERMINAL METHANOL & DO VOLUME MEASUREMENT

- Gross and net volume measurement of methanol and/or DO loaded will be carried out on the basis of Terminal measurement and sampling.

10.3 SAMPLING

- Samples in Vessel tanks will be taken prior to offloading operations and at manifold during the starting period. Quality control checks will be carried out by the terminal laboratory before the product is accepted for offloading.

10.4 VESSEL PUMPING RATE

- The loading rate of the Vessel is notified by the Vessel Master on the information sheet on arrival. The maximum loading rate of methanol or DO for the terminal is 250 m3/hr.

- The loading flow rate must be reduced to 100 m3/h during the starting and the ending periods of the pumping. After transfer has commenced, Terminal CCR will inform Vessel if she can increase to maximum agreed rate.

- The Vessel must inform Terminal CCR of any change in the offloading rate and indicate the reason.

10.5 EMERGENCY LOADING STOPPAGE

- If it becomes necessary to stop loading in an emergency, due to parting of mooring lines, pollution or serious accident, the Vessel Master must warn the Mooring Master of same.

- The Vessel Master must also warn the Terminal CCR on VHF channel 16 or 12 Hold[4].

- The Vessel Master is responsible for pumps control, all valve openings and closures and for the safety of the cargo on board the Vessel.

10.6 END OF LOADING AND FINAL STOPPAGE

- Prior to the end of pumping, the Vessel must give a 30 minutes notice to the Mooring Master and reduce loading rate as per previously agreed.

- The Vessel stops loading when the cargo is completed except if agreed differently or on request of the Mooring Master or Terminal CCR.

- Tank inspection after offloading must be undertaken in the presence of the Mooring Master or Mooring Master Assistants.

10.7 FLOATING HOSE DISCONNECTION

- Before disconnection, the floating hose string will be purged with nitrogen.The purging will be supervised by the Mooring Master who will instruct Vessel crew.

- Hose disconnection operations are undertaken by the Vessel crew and supervised by the Mooring Master and/or the Mooring Master Assistants.

10.8 FORMALITIES PRIOR TO DEPARTURE OF VESSEL

The Vessel Master and the Mooring Master will remit all the commercial documents, as per the directions received by TOTAL E&P ANGOLA Block 32 Limited.

11. EMERGENCY SHUTDOWN PROCEDURES

- The Emergency Shutdown Procedures (ESP) may be initiated either by the Mooring Master onboard or by the KAOMBO NORTE CCR if an emergency situation is observed. All involved in the cargo loading operations, including the Assistance Vessels and other service vessels shall be immediately notified of the impending ESP.
- When the Emergency Shutdown Procedure is activated, the Terminal system automatically goes into a shut down. The ESD valves on the FPSO will close immediately.
- Once the oil flow is stopped, the Vessel's manifold valves and the hose end butterfly valves may be closed as directed by the Mooring Master.
- If the emergency is one that makes a quick departure of the Vessel from the tandem mooring necessary, the Emergency Departure Procedure will then be activated :
    - EMERGENCY DEPARTURE OF A TANKER : AO-101-10-E003-867017
    - OIL LEAK ON BOARD TANKER PROCEDURE : AO-101-10-E003-867018

11.1 TANDEM CONFIGURATION EMERGENCY DEPARTURE PROCEDURE

- Emergency Departure Procedure from Tandem Configuration can be initiated either by the Vessel Master, the Mooring Master or requested by the OIM.
- The Vessel’s engines must then be made ready for immediate service.
- If an abrupt shutdown of the loading operations is necessary, it is essential that Vessel's cargo manifold valves may only be closed AFTER the ESD valve on the FPSO has been confirmed closed.
- The floating hose will then be disconnected and lowered to the water in the quickest way possible

without posing danger to personnel, or the environment, or equipment.

- At the instruction of the Mooring Master, the Quick Release System is activated to release the mooring hawser and/or the floating hose from FPSO side
- The Quick Release System can be activated from:
    - FPSO CCR, or
    - FPSO Tandem manifold

The Marine Breakaway Coupling (MBC) enables a Vessel to leave the SPM without disconnecting the hose; however such a decision could be made in extreme and exceptional circumstances.

- If the dropping of the floating hose in water method is carried out the floating hose string should be inspected in accordance with OCIMF recommendations.
- After the Vessel has departed the Tandem Configuration, it shall remain outside of the Marine Terminal Area of Operational Responsibility, until departure formalities are completed by the competent Authorities.

11.2 EMERGENCY RESPONSE PLAN

- As required by the Vessel/Terminal safety check-list, the Vessel Master and the Mooring Master shall discuss and agree upon actions to be taken in the event of an emergency involving a fire on board a Vessel or at the Terminal, or if an oil spill occurs. This action plan should include defining the means of communication and emergency procedures, and may also include one or more of the following items:
    - Sounding emergency alarm (sound one or more blasts of the Vessel's whistle).
    - Sounding of Vessel's internal emergency signals.
    - Stoppage of loading operations.
    - Alerting Assistance Vessels (stern and sides tugs).
    - Involving Fire Fighting means and forces.
    - Mobilization of emergency teams and fire fighting equipment.
    - Vacate the berth using Emergency Departure Procedure.

- The Vessel Master shall provide the Mooring Master with a copy of the Vessel's Emergency Organization and Response Plan.

- The Emergency Response Plan may be invoked by the Mooring Master or the Vessel Master.

12. SERVICES

12.1 AVAILABILITY OF AGENCY FUNCTIONS AT THE TERMINAL

- The owners and operator of the Terminal neither perform nor do they provide any agency functions at the Terminal. Vessel Disponent Owners or charterers of Vessels calling at the Terminal must therefore arrange for their own agents.

- TOTAL E&P ANGOLA Block 32 Limited transport facilities may not be used by the crews of Vessels coming to load on the Terminal.

12.2 MEDICAL ASSISTANCE

- Except in the case of a medical emergency, the Terminal shall not render any medical assistance to Lifting Vessels during their stay in the Terminal.

- Emergency Medical Evacuation of crew members from the Vessel to Luanda is organised by TOTAL E&P ANGOLA Block 32 Limited at the Vessel expense. Transportation means are decided by TOTAL E&P ANGOLA Block 32 Limited, having regard to the logistic planning and availability.

- Requests by the Master for medical evacuation are confirmed officially to TOTAL E&P ANGOLA Block 32 Limited by the shipping agent of the Vessel who takes charge of the evacuee upon arrival in Luanda.

12.3 OILY WATER TREATMENT

- The Terminal does not have any facilities for receiving and / or the treatment of oily water from Lifting Vessels. All Vessels are therefore required to treat their oily water before discharge to sea. Discharge of oily water is expressly prohibited while the Vessel is within the Terminal or within its area of responsibility.

12.4 VESSEL SERVICES

- The Terminal does not provide any of the husbanding and logistic services, such as bunkering, ship's repairs, provisioning and chandelling, repatriation services and other services, which might by required of Vessels calling at a port facility.

12.5 PORT CHARGES

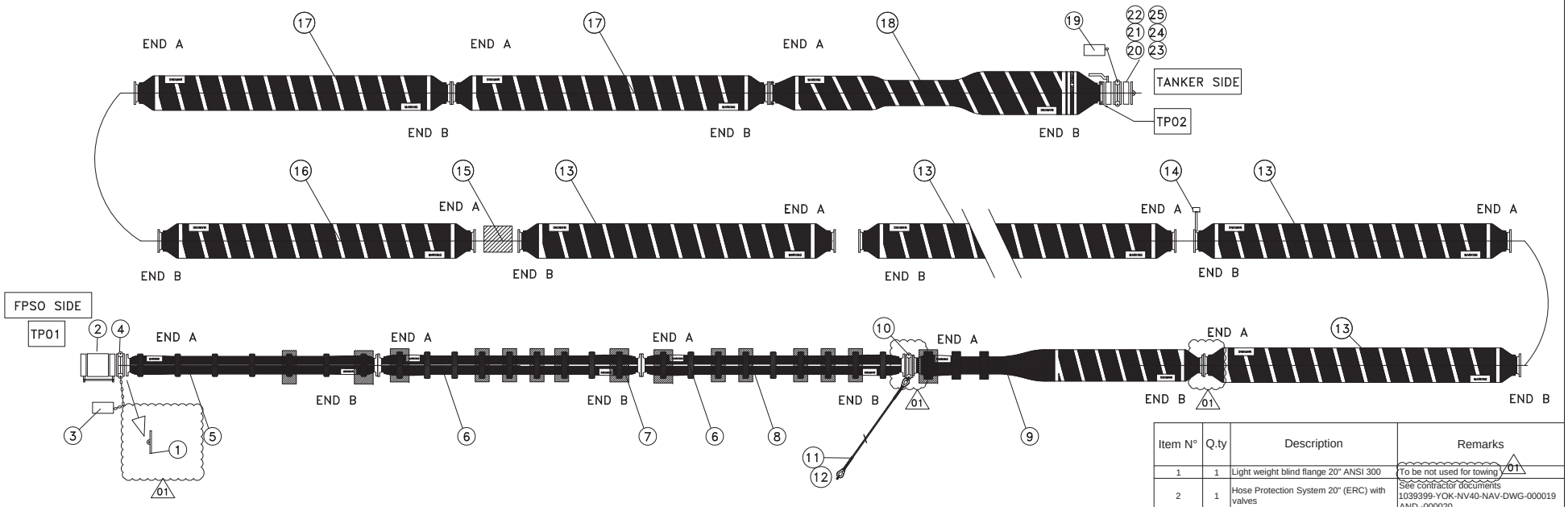
- Terminal dues, taxes, duties and other charges may be imposed by the Local Authorities and the Vessel Master or Vessel Disponent Owner, their consignors or agents shall be liable to pay any such terminal dues, taxes, duties and/or charges as are applicable.

13. APPENDICES HOLD [1]

- Offloading Hose General Arrangement
- Methanol / Diesel Oil Loading Hose General Arrangement
- Terminal layout
- Waiting areas
- Call codes
- Ship shore safety check list
- Material safety data sheet
- Guidance to fill ship shore safety check list as per ISGOTT
- Acknowledge receipt of terminal regulations and procedures
- Mooring arrangement
- Loading arms or floating hose arrangement
- Summary of communications means
- Mooring Master passage plan
- Management of ballast water certificate (IMO regulations)
- Statement of compliance of the port facility (ISPS)

Declaration of security between a ship and a port facility (ISPS)General marine provision for the area or specific port regulations when the port is included into another marine district controlled by others

13.1 APPENDIX 1 : OFFLOADING HOSE GENERAL ARRANGEMENT



Item N°	Q.ty	Description	Remarks
1	1	Light weight blind flange 20" ANSI 300	To be not used for towing 01
2	1	Hose Protection System 20" (ERC) with valves	See contractor documents 1039399-YOK-NV40-NAV-DWG-000019 AND -000020
3	1	Marker Buoy with Pick up chain and shackles	
4	1	1st off lifting spool piece 20" with lugs	
5	1	First off FPSO ISOLA S TR T C 20"x35ft	
6	2	2nd and 3rd off FPSO ISOLA S TR T C 20"x40ft	
7	5	End floats	Qty TBC by Orcafex static and dynamic analysis
8	10	Body floats	Qty TBC by Orcafex static and dynamic analysis
9	1	4th off FPSO ISOLA MG DIFLEX T C EB 20"x40ft	
10	1	Back-up spool piece 20" with lugs	
11	1	Back-up wire rope and Quick Release Hook (QRH)	
12	1	Back-up chain	
13	24	Main line ISOLA G T 20"x40ft	
14	6	Winkerlight solar panel short type	
15	1	Breakaway Coupling MBC 20"	
16	2	ISOLA G TAIL T Elect Cont 20"x40'ft	
17	1	ISOLA G TAIL T Elect Discont 20"x40ft	
18	1	ISOLA GT TANKER T 20"x30ft	
19	1	Marker Buoy with synthetic rope and shackles	
20	1	Pick up chain	
21	1	Snubbing chain	
22	1	Butterfly valve 20"	
23	1	Short spool piece 20"	
24	1	Cam-Lock 20"	
25	1	Light weight blind flange 20" ANSI 150	

Estimated Grand Total Weight of the system empty (*)	115 +/- 5% [ton]
Estimated Grand Total Weight of the system full of water (*)	200 +/- 5% [ton]
Load transfered to the FPSO	Will be advised after Orcaflex static and dynamic analysis
Tie-in point (TP01) data	20" flange Class 300 WN FF ANSI B 16.5 Material ASTM A-105 N
Tie-in point (TP02) data	20" flange Class 150 WN FF ANSI B 16.5 Material ASTM A-105 N

(*) Not included the weight of: ERC system, back-up wire and chain, MBC

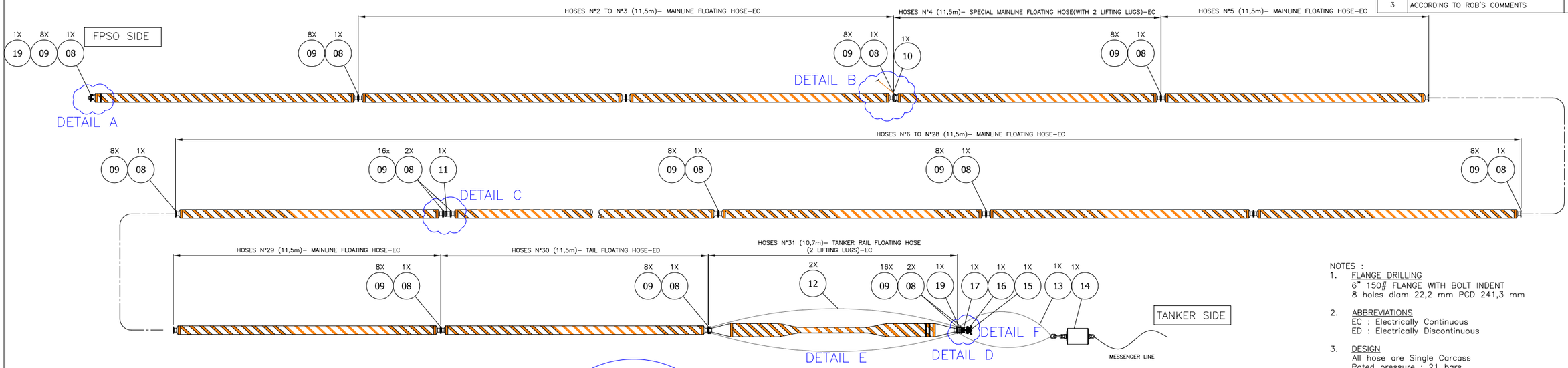
01

TOTAL E&P ANGOLA BLOCK 32	Purchase Order Number: 1039399	Purchase Order Title: OFFLOADING_HOSES	Company Document Number: AO-101-11-F413-000015	Rev: 01 / Date: 16/10/2015
			Contractor Document Number: 1039399-YOK-NV40-NAV-DWG-000015	Status: AFC / Class: 2
KAOMBO Project			Vendor Document Number: TV253A	Scale: 1/20 / Format: A3
		GENERAL_ARRANGEMENT_DRAWING COMPLETE_OFFLOADING_SYSTEM_-_NORTH_FPSO 11JZ2510;_11JZ2505;_11JZ2506;_11XZ2507	Electronic Filename: KAOMBO_N_FPSO_GA_TV253A_REV01.DWG	Folio: 2_OF_2

13.2 APPENDIX 2: METHANOL / DIESEL OIL LOADING HOSE GENERAL ARRANGEMENT

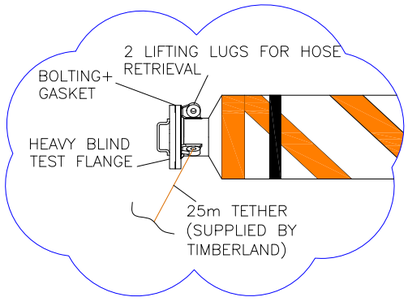
TOTAL LENGTH OF HOSES ARE 355.7m

Rev	Description	Checker	Date
1	ACCORDING TO TIMBERLAND'S COMMENTS	E.MOTTA	04/05/2016
2	ACCORDING TO ROB'S COMMENTS	E.MOTTA	04/06/2016
3	ACCORDING TO ROB'S COMMENTS	E.MOTTA	04/06/2016

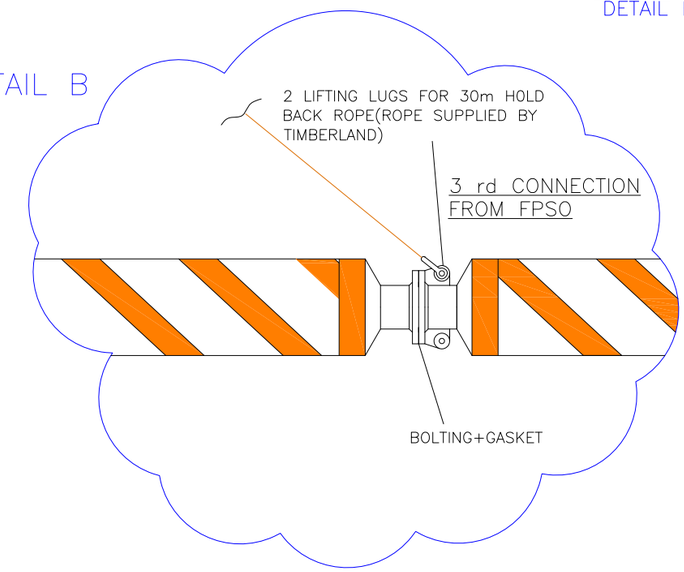


NOTES :
1. FLANGE DRILLING
   6" 150# FLANGE WITH BOLT INDENT
   8 holes diam 22,2 mm PCD 241,3 mm
2. ABBREVIATIONS
   EC : Electrically Continuous
   ED : Electrically Discontinuous
3. DESIGN
   All hose are Single Carcass
   Rated pressure : 21 bars
   Design according to GMPHOM2009
4. BOLTING
   TIGHTENING TORQUE
   3/4" : 240 N.m

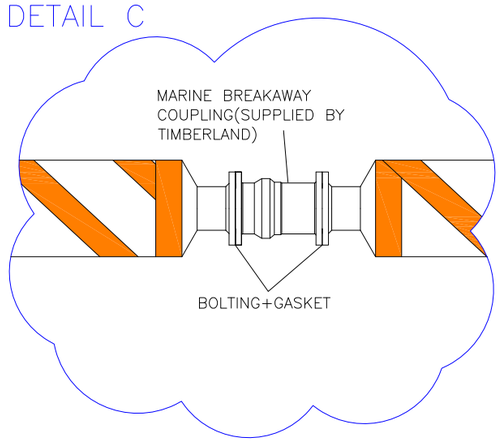
DETAIL A



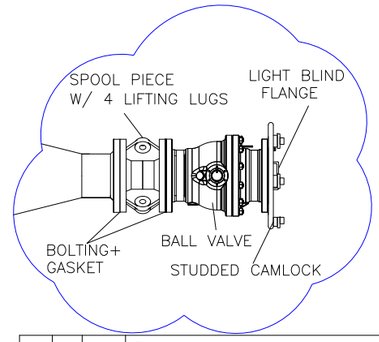
DETAIL B



DETAIL C



DETAIL D



OVERALL ESTIMATED WEIGHT:20925kg– NOT INCLUDED MBC+TETHER+ROPE+ OPERATION SPARE

Item	Qty	Op. Spares	Description
19	1		6" ANSI 150lbs Spool Piece wtth 4 lifting lugs
18	1		6" ANSI 150lbs Heavy Test Blind Flange
17	1		6" ANSI 150lbs Ball Valve
16	1		6" ANSI 150lbs Studded Camlock
15	1		6" ANSI 150lbs Light Blind Flange
14	1		Pick–up Buoy(100kgf) with Rope
13	1		Pick–Up Chain
12	2		Snubbing Chain
11	1		6" ANSI 150lbs Marine Breakaway Coupling(SUPPLIED BY TIMBERLAND)
10	2		Restraining System(SUPPLIED BY TIMBERLAND)
09	272	52	3/4" x 120mm – PTFE BOLTING with 2 nuts
08	34	7	6" ANSI 150lbs Spiral wound gasket with PTFE filler
05	1	/	Tanker Rail hose floating 6" x 35ft(10.7m)–ANSI 150 –EC–REF SUPPLIER: S RS235
04	1	/	Tail Fully floating– 6" x 11.5(37.8m)– ANSI 150 –ED–REF SUPPLIER: S TS202
03	1	/	Special Mainline Fully floating– 6" x 11.5(37.8m)– ANSI 150 –EC–REF SUPPLIER: S OS202
02	27	/	Mainline Fully floating– 6" x 11.5(37.8m)– ANSI 150 –EC–REF SUPPLIER: S MS202
01	1	/	1st Off Reel hose– Fully floating– 6" x 11.5(37.8m)– ANSI 150 –EC–REF SUPPLIER: S FS242

RESPONSIBLE	NAME	Date
DRAWN	E.MOTTA	03/08/2016
CHECKED	F.PAN	03/08/2016
APPROVED	E.WILHELM	03/08/2016

Drawing size : A3 | Measures : mm

TRELLEBORG SANTANA DE PARNAÍBA IND. E COM. DE SOLUÇÕES EM POLÍMEROS LTDA

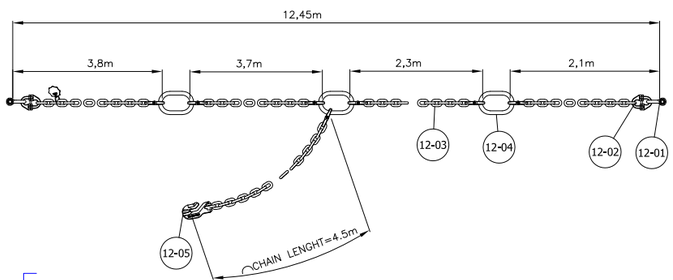
GENERAL ARRANGEMENT DRAWING — DSW–ASSEM053

TIMBERLAND — CDR Code: — Rev. 3

TRELLEBORG Job :

ARRANGEMENT DETAIL SNUBBING CHAIN APROX.12,45m(2 PIECES)

TOTAL WEIGHT:±72 kg/EACH SBUBBING



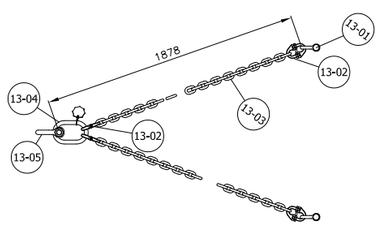
DETAIL E

BLACK PAINTED

Item	Qty	Description
12–05	1	Shortening Hook Diam.13
12–04	3	MASTER LINK FOR DOUBLE LEG SLINGS TO CHAIN13mm GR8 MASTER DIAM. 22 mm SWL 5.3 T
12–03	398	CHAIN LINK GR8 DIAM 13mm SWL 5.3T
12–02	9	CONNECTING LINK DIAM 14mm SWL 5.3 T
12–01	2	BOW SHACKLE 5/8" SWL 3.25T MBL –ZINC GALVANIZED

ARRANGEMENT DETAIL PICK–UP CHAIN APROX.1,87m

TOTAL WEIGHT:±19kg



DETAIL F

BLACK PAINTED

Item	Qty	Description
13–05	1	ZINC GALVANIZED BOW SHACKLE 1" SWL 8.5T –ZINC GALVANIZED
13–04	1	MASTER LINK FOR DOUBLE LEG SLINGS TO CHAIN13mm GR8 MASTER DIAM. 22 mm SWL 5.3 T
13–03	76	CHAIN LINK GR8 DIAM 13mm SWL 5.3T
13–02	4	CONNECTING LINK DIAM 14mm SWL 5.3 T
13–01	2	ZINC GALVANIZED BOW SHACKLE 5/8" SWL 3.25T –ZINC GALVANIZED