KNOC YEOSU MARINE TERMINAL

INFORMATION AND REGULATIONS

〔2018 Edition〕

한국석유공사
KOREA NATIONAL OIL CORPORATION

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INTRODUCTION

" Welcome your visiting of KNOC Yeosu Terminal ! "

The purpose of this handbook is intend to provide for the ship's master, owner, operator and agent with general informations, regulations and requirements regarding to facilities and services available at the KNOC Yeosu marine terminal. It may be useful to the safety operation of ships in making plan to minimize the possibility of accident and to control the consequence of accident which might be occurred while a ship is alongside at the KNOC marine terminal and within port limits, but does not supercede or replace official publications, charts, laws, local regulations covering waters and areas. Although these informations contained in this handbook is thought to be accurate at the date of issue, but is in no way under guarantee. All of these informations in handbook can not be held responsible for any errors or omissions contained there in. It means that KNOC terminal assumes no responsibility for the accuracy of this handbook or for the consequences of using it for any purpose whatsoever.

These stipulations shall apply to all ships calling on the KNOC terminal for loading or unloading. Especially your attention is drawn to the instructions to ship regarding safety regulations which control and govern while you stay at the our terminal. All of the other legal formalities and safety regulations excluded in this booklet are to be under the control of the "Yeosu/Kwang Yang Port Operation Manual" and "Port Regulations" correspondingly.

The master or person in charge of any ship while at the our terminal, shall have adequate knowledge of these conditions, regulations and requirements and ensure that his crew members are fully informed of them.

Yours sincerely,

Terminal Representative of KNOC Yeosu Terminal

Contents

Section 1. Emergency Procedures

In the event of any emergency situation arising onboard tankers at Yeosu Marine Terminal, the berth/loading master shall be responsible for ensuring coordination between the shore terminal and tanker involved in the emergency and shall take appropriate actions.

1.01 Incidents the Terminal Emergency may be declared ;

- Fire or Explosion at the Terminal and on or around a moored Tanker.
- Major escape of flammable and/or toxic vapours, gases, oil or chemicals
- Collisions (Tanker to Tanker, Tanker to Jetty)
- Major Terminal accidents involving Tankers, tugboats, mooring boats, service boats etc.
- Meteorological hazards such as adverse weather conditions and heavy electrical storms.
- Attack, sabotage and treats against Tankers or the Terminal.

1.02 Notice and Raise the Alarm

Sound long blast of ship's whistle and notice to Loading Master or Terminal Representative using shore radio, VHF and any available contacts ;

- Berth Master Kim, Dong Ku : 82 - 10 - 6805 - 3232
- Loading Master Choe, Yong Ju : 82 - 10 - 2624 - 2779
- Loading Master Lee, Seong Taek : 82 - 10 - 3161 - 6070
- Terminal control room (if necessary) : 82 - 61 - 688 - 8760~8764

1.03 General Emergency

Actions to be taken shall be determined by the type and severity of the incidents and are ;

i) Raise alarm and stop loading
ii) Disconnect loading arm
iii) Stand-by for un-mooring
iv) Comply with emergency reporting procedures
v) Fire fighting facilities standby
vi) Departure from the Terminal

1.04 Oil Spillage

- Raise the alarm and stop all cargo operations
- Crew musters on designated place and takes actions
- Inform Berth Master and Loading Master (Report to Coast Guard)
- Bring Main Engines and one deck officer attend on the bridge
- Drop line open for line drain / Adjust Trim and Heel to counter side

- Open the dumping v/v and transfer oil to slop tanks
- Minimize Rain and any water inflow (if necessary, open scuppers on the far side)
- Mop oil up and comply with the Coast guards' order

1.05 Fire

- Raise the alarm and stop all cargo operations
- Crew musters on designated place and takes actions
- Inform Berth Master and Loading Master (Report to Coast Guard)
- Bring Main Engines and one deck officer attend on the bridge
- Close the manifold valves after depressurizing the lines
- Disconnect loading arm
- the Tanker is to prepare to unmoor from the terminal. The pilot / loading master / Korean Coast Guard will liaise for any shore assistance that may be required for fire fighting or towing and will coordinate such assistance

1.06 Attack, sabotage and treats against Tankers or the Terminal related ISPS code

- If imminent, raise the Tanker's alarm and If necessary, stop cargo operations and close the manifold valves after depressurizing the lines
- Inform Berth Master and Loading Master (Report to Coast Guard)
- Bring Main Engines and one deck officer attend on the bridge
- Disconnect loading arm
- Implementation of tanker and terminal security plan at highest security level
- After disconnecting loading arm, the pilot will co-ordinate the unmooring operation and unmoor from the terminal

1.07 Hydrogen Sulphide (H_2S) and Benzene Exposure in open area

※ Limitation : H_2S - 5ppm, Benzene - 0.5ppm or less by volume in air

- See the 'Material Safety Data Sheet' for immediate First Aid to be administered
- If necessary, stop cargo operations and close the manifold valves after de-pressurizing the lines
- Raise the Tanker's Alarm
- Inform the Agency and Loading master so that medical assistance can be provided

1.08 Others

The Pilot / Loading Master is to be informed so as to render assistance. The Master is to take all possible precautions to minimize the resulting consequences.

Section 2. Berth Fit

The ship must comply with the latest SOLAS and MARPOL conventions and protocols. If the ship is found with serious deficiencies, the ship will be stopped cargo operation and unberthed.

2.01 Vessel Qualifications

1) Ship's age : not more than 22 years
2) Range : Min. 65,000 ~ Max. 325,000 SDWT
   or Parallel Body Length in ballast condition : Min. 100 m
3) Mooring lines : as recommendation in "3. berthing to unberthing Operation"
4) Major Approval : Min. 2 Major approvals within a year

2.02 Cargo Liaison Officer(CLO, Cargo Supervisor)

All tankers calling KNOC Yeosu Terminal must have a cargo supervisor on-board on owner's account to monitor the vessel's safe cargo operation during being berthed at KNOC Yeosu terminal.
Cargo Liaison Officer who should be completed KNOC OJT Course by KNOC will be appointed by the KNOC Yeosu terminal to supervise the ship with cargo operations and safety. When ship's owner and/or charterer wants to appoint CLO on their end, the CLO must be a qualified person who completed KNOC OJT Course and it should be informed to or negotiated with KNOC Yeosu Berth Master in advance.

※ Qualification of CLO : The 1st class licensed ex-tanker(VLCC) master at least 1 year

2.03 Terminal Safety Inspection(TSI)

It is compulsory that the vessel intend to enter KNOC Marine Terminal should be taken terminal safety inspection before berthing. Owner shall agree to allow safety inspection with the owner's time and expense. Inspection validity shall not exceed six(6) months. The policy as follows ;

1) Vessels not exceeding 15 years.

   ① Newly built vessel within one year
   ② VLCC over 10 years old calling first time KNOC Yeosu Terminal
   ③ Vessel Lay-up more than three months within past one year
      or management company has changed within three months
   ④ Vessel dose not has minimum two major approvals within a year
   ⑤ Vessel has warned of making any problems whilst berthing on KNOC Terminal
   ⑥ Vessel in the first voyage(Loading/Unloading) after dry dock
   ⑦ All VLCC calling KNOC Yeosu Terminal for loading cargo

2) All vessel exceeding 15 years

Section 3. Berthing to Un-berthing Operation

3.01 Berthing Operation

1) Berthing Condition

Berthing operation should not be allowed unless all of following conditions are satisfied.

Descriptions	Requirements
Tide and Time	- Not allowed nighttime berthing every vessel - Slack time of high water for vessel restricted her draft - Slack time of any tide for GRT over 50,000 tons in ballast condition and full-loaded vessel her GRT over 30,000 tons which are not restricted her draft
Tidal current	less than 0.5 kts
Wind speed	less than 10 m/sec
Wave Height	less than 1.0 m
Visibility	more than 1.0 mile

※ Even if all of the above mentioned berthing criteria are satisfied, berthing operation should not be allowed in one of the following case:

① When an electrical storm is existed or approached in the vicinity of terminal

② When the terminal representative considers the berthing operation is dangerous in his judgement on the weather and tidal condition at that time

2) Tug and mooring Craft assistance

① Tug boats of not less than 3,600 HP and less than 30 years old, are to be employed for over 40,000 GRT tanker while berthing and un-berthing operation at KNOC Yeosu Terminal.

Ship's Gross Tonnage	Total Horse Power	No. of Tug
Below 70,000 G/T	Ballast : more than 12.5% of Gross Tonnage Laden : more than 17% of Gross Tonnage	Min. 3
Over 70,000 G/T	Ballast : more than 10% of Gross Tonnage Laden : more than 17% of Gross Tonnage	4 ~ 6

※ For details, please refer to Yeosu Kwang Port Tug Operation Regulation.

② The number of tug assistance should be increased according to the weather and sea conditions at that time.

③ In case of VLCC berthing operation, at least 4 tugs should be made fast to the ship off a distance of 2(two) mile from the south end of jetty berth

④ The tug should be stationed until completion of mooring operation.

⑤ Two mooring crafts are to be arranged to relay the mooring line to the jetty berth

3) Approach and Moorings

① Where the ship off a distance of 30m of the jetty berth, The Master should be complied with following restrictions:

Description	Restriction
Approach speed	less than 5cm/sec(≒ 0.1knot)
Angle of approach	less than 3°

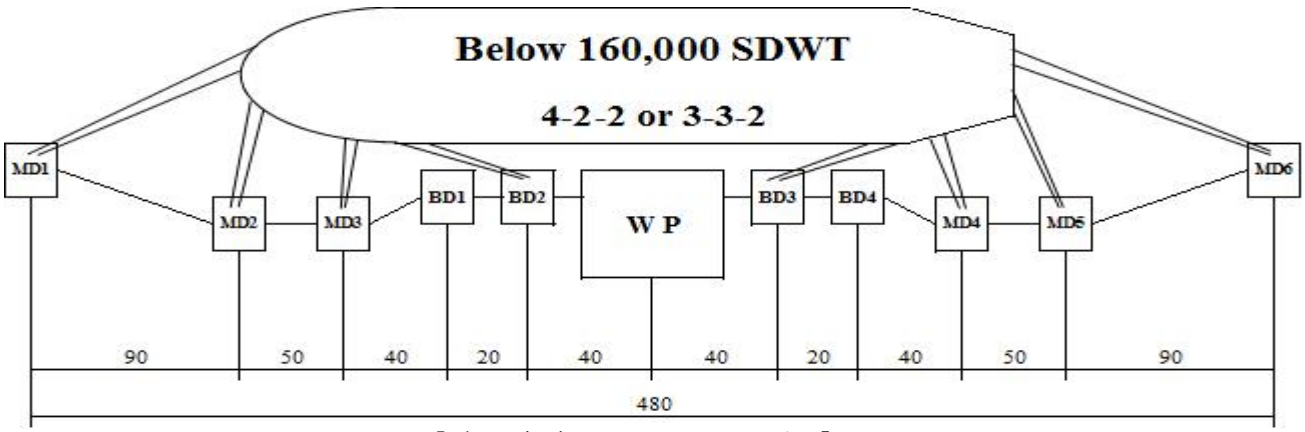
② Berthing aid system is installed at top of gangway tower and displays distances, speed and angle of approach. The visual signals of berthing aid system means as follows:

Description	Meaning	Approach speed
Blue light	safe zone,	less than 5cm/sec
Yellow light	warning zone,	6cm/sec to 10cm/sec
Red light	dangerous zone	over 10cm/sec

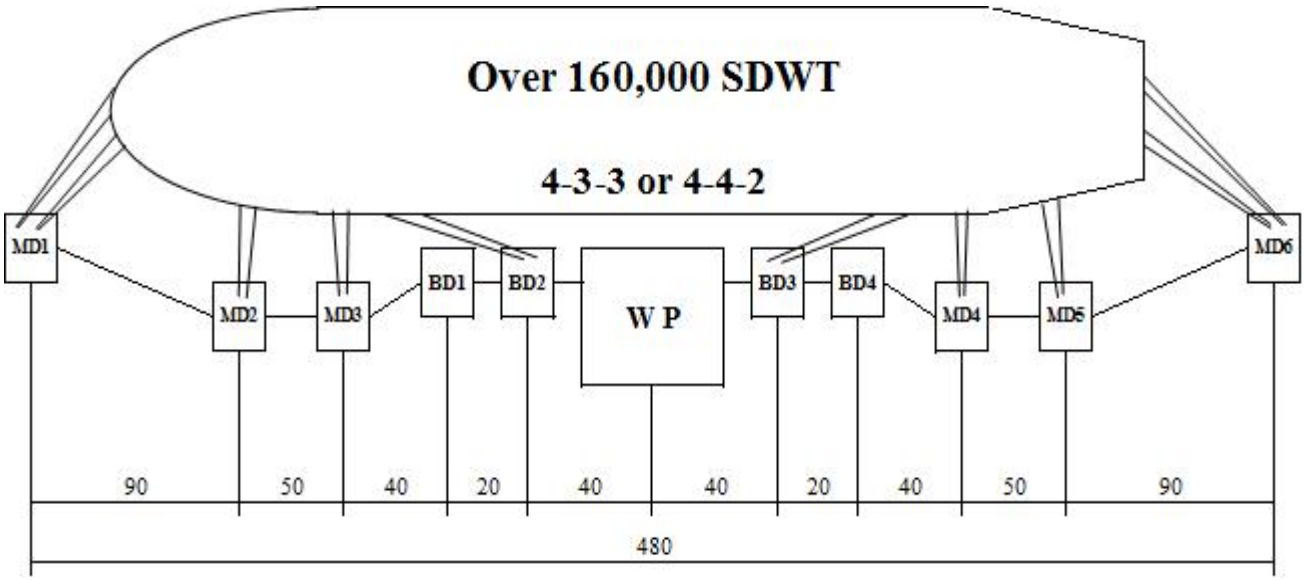
③ Order of made fast: Spring→Breast→Head · Stern line

3.02 Mooring Arrangement:

1) Ship over 160,000 SDWT, 4 head and stern lines, 3 breast lines and 3 spring lines to be made fast and the mooring lines should be all-wire
2) Ship 80,000 to 160,000 SDWT, 3 head and stern lines, 3 breast lines and 2 spring lines to be made fast, the spring and breast lines should be all-wire, the head and stern lines should preferably be all-wire
3) The mooring arrangement can be adjustable according to the weather and sea conditions and ship's situation at that time



[Ship below 160,000 SDWT]



[Ship over 160,000 SDWT]

3.03 Management of Mooring

1) Ship personnel are responsible for the frequent monitoring and careful tending of the moorings.
2) When tending moorings which have become slack or too taut, an overall view of the mooring system should be taken so that the tightening or slackening of individual lines does not allow the ship to move or place undue loading on other lines. The ship should maintain contact with the fenders and moorings should not be slackened if the ship is lying of the fenders.
3) Whenever the following conditions exist or are expected, The Master should arrange the tugs to maintain ship's position:
   · Significant increase in wind speed or change in wind direction, particularly if the ship has substantial freeboard
   · Swell
   · Periods of maximum tidal flow
   · Limited under-keel clearance
   · The close passing of other ships
4) Self tensioning winches fitted with automatic rendering and hauling capability should not be used in the automatic mode while the ship is moored because they not always hold it in position at a berth.
5) The ship should be ready at all times to put out extra mooring line as requested by the Loading Master
6) Readiness to Move Under Own Power

① While a ship is berthed at a terminal its boilers, main engines, steering machinery and other equipment essential for maneuvering should normally be maintained in a condition that will permit the ship to move away from the berth at short notice

② Repairs and other work which may immobilize the ship should not be undertaken at a berth without prior, written agreement with the Loading Master

3.04 Cargo Operation

1) Cargo Safety Meeting

Prior to transfer of cargo, there will be a Cargo Transfer and Safety Conference which is presided over by KNOC Berth Master. This conference will normally take about 30 minutes and will be attended by the Master, Chief Officer, ship's agent, CLO and Loading Master.

2) Operation Procedures

① Loading Master commands all cargo operation

② All cargo operations including switching off tanks, topping off, pumping, inerting, and crude oil washing must be directed by chief officer and personally supervised by Master.

③ Upon being informed by Master or Chief Officer that tanker is ready to start cargo operation, Loading Master is to request cargo operation according to agreed plan with respect to start-up rate, maximum rate, topping off rate and crude oil washing.

④ Emergency shut-down must be done by VHF radio(Ch. 72) or oral communication among Loading Master, tanker and shore.

⑤ In the event of failure of VHF communication, tanker should sound 5 Short blast with ship's whistle.

⑥ During all cargo operation, "B" flag should be displayed during daytime and one "RED" all around signal be lighted during night time.

3) Crude Oil Washing Operation(COW)

① All precaution should be taken in accordance with current IMO specification of SOLAS and MARPOL regulations. COW operation should be carried out only **within 25% volume of tank capacity.**

② Before Start COW the terminal Loading Master must be advised, and the inert gas

system be fully operational, and capable of producing inert gas, having an oxygen content not exceeding 8%. COW must be performed in accordance with ISGOTT requirements.

③ Tank cleaning operations not allowed during the ship stay alongside the jetty

4) Ballast Control

The responsible officer should inform the Loading Master of the general arrangement of the ballast and should have available the information listed below:

① Disposition, composition and quantity of ballast with time required for ballast operation and maximum light freeboard

② Approximate time of commencement and duration of ballast operation

5) Stop Cargo Operation

The cargo operation should be suspended on one of following condition is existed

① When a fire and/or explosion has occurred on board and/or jetty berth

② When an oil spill has occurred from the ship and shore

③ When an one of following condition is exceeded:

Wind speed	more than 14.0m/sec (Loading Arm disconnection : 15m/sec wind velocity)
Wave Height	more than 2.0m

④ When an any defect of cargo facility on the ship and shore which may affect the safe cargo operation

⑤ When an electrical storm is existed or approached in the vicinity of terminal

⑥ When the ship being moved or kept off more than 1m fore and aftward or 0.5m seaward from the moored position

⑦ When an any critical violations against terminal safety regulations

⑧ In the event of Loading Arm alarms being activated due to the vessel moving alongside

⑨ Excessive difference between ship's manifold and shore pressure

3.05 Un-berthing Operation

1) Vessel restricted her draught is allowed unberthing at a time of high water slack ±30 minutes during daytime, from sunrise to sunset only
2) Vessel her draught below 13 meters are allowed unberthing 24hrs at a time of slack water ±30 minutes .
3) Tugs should be stationed on the off-shore bow, midship and quarter of the ship and pushed the ship so as hold the ship contact to the fender tightly while letting-go all mooring lines
4) Order of cast off: Head · Stern→Breast→Spring lines

3.06 Emergency Departure

The ship should be un-berthed at one of the following conditions is existed

1) When a fire and/or explosion has occurred on board and/or jetty berth
2) As directed by Terminal representative and/or port authority when an oil spill has occurred from the ship and shore
3) When one of following condition is exceeded:

Wind speed	more than 20m/sec
Wave Height	more than 3.0m

3.07 Terminal closure

Notice of readiness will not be accepted during the time when the terminal is closed. The terminal is closed when the weather is too rough for incoming tanker to berth. The decision regarding to the opening and closing of the terminal will be rested with KNOC berth master.

Section 4. Terminal Information

KNOC Yeosu Marine Terminal belongs to Korean Government

4.01 Address

	Head office	Yeosu office
· Phone	: 82-52-216-2114	82-61-688-8757
· Fax	: 82-52-216-5900	82-61-688-8759
· Address	: 305, Jongga-ro, Jung-gu, Ulsan, Korea	450, Nakpodanjigil Yeosu-City, Jeollanam-do, Korea
· E-mail	: knoc_inform@knoc.co.kr	dongku.kim@knoc.co.kr

4.02 Location (Approx. center of working platform)

Latitude 34° - 50' - 30 ″ N
Longitude 127° - 47' - 05 ″ E

4.03 Terminal Description

Description	Capacity
- Tanker size	- Min. 65,000 ~ Max. 325,000 SDWT Tanker ※ PBL in ballast should be over 100m
- Max. Loading rate(to Ship)	- 54,000 bbls/hr
- Max. Unloading rate(to Shore)	- On-Shore Tank(KNOC) : 54,000 bbls/hr - On-Shore Tank(OKYC) : 54,000 bbls/hr - Underground Cavern : 64,000 bbls/hr
- Maximum Operating pressure at ship's manifold	- Unloading : 8.1 ㎏/㎠ - Loading : 3.0 ㎏/㎠
- Loading arm	- Cargo : 16" x 3 sets - Vapour : 16" X 1 set
- Shore pipe line	- 40" × 2 km
- Draft restriction	- Max. 21.0 meters (Depth of berth : 23.5m)

4.04 Weather Limits(Environmental condition)

Description	Berthing	Stop Cargo	Discon. Arm	Unberthing
Wind speed	less 10m/sec	14.0m/sec	15.0m/sec	20.0m/sec
Wave height	less 1.0m	over 2.0m	over 2.5m	over 3.0m
Current	less than 0.5kts	-	-	-
Visibility	over 1.0 mile			
Water depth	23.5m at LLW			
Salinity	1.025			

4.05 Audit & Inspection

All kinds of audit and inspection should be allowed before arrival by KNOC Berth Master.

4.06 Safety rules

1) Letter of "conditions for using of KNOC facilities" must be acknowledged before tanker's berthing. Safety inspections will be performed prior to cargo operation to ensure conformity regarding to safety requirements. Any critical violations against KNOC safety rules/regulations will cause tanker to be unberthed immediately under the owner's responsibility. This information will be shared in KNOC and the vessel would not enter any KNOC terminals.

2) It is essential that all personnel under command of ship's Master strictly adhere to the requirements laid down in the International Safety Guide for Oil Tankers and Terminals.

4.07 Supplies and provisions

Supplies and provisions by unauthorized craft are prohibited without approval of the terminal representative while staying at the jetty. No bunker and fresh water supply facilities are installed on the dolphin.

4.08 Accommodation

Vessel should provide two(2) cabins with shore people, KNOC Loading Master and CLO(Cargo Supervisor) who are staying on board throughout cargo operations.

4.09 Pre-Arrival Message

Master should cable to KNOC berth master ETA of 72/48/24/12 hours before arrival with following messages in advance via agent .

1) ETA
2) Last port of call
3) Next port of call
4) Nominated cargo quantity
5) Maximum Loading/discharge rate
6) Maximum free-board
7) PBL in ballast condition
8) Stowage/Discharge Plan
9) Crew List
10) Security Level
11) How many hours of de-ballasting

Section 5. Safety

Vessel should conduct any fulfillments regarding Korean & International rules and guidances of ISGOTT & OCIMF. Routine requirements described in latest OCIMF & ISGOTT are not mentioned.

5.01 General Safety

1) Responsibility for the safe conduct of operations on board ship while alongside KNOC Yeosu Terminal rests with ship's Master. we request ship's full co-operation with the safety requirements set out in the Ship/Shore Check List(Appendix 5) before operation starts.

2) It is essential that all personnel under command of ship's Master strictly adhere to the requirements laid down in the International Safety Guide for Oil Tankers and Terminals.

3) Letter of "Conditions for the use of KNOC facilities" must be acknowledged by Ship's Master and forwarded to KNOC Berth Master via ship's agent before arrival.

5.02 Emergency Signal

In the event of fire or other emergency, should sound one or more long blasts not less than 10 seconds duration.

5.03 Notification of Deficiencies

Failure to notify the terminal of any deficiencies will result in the tanker being denied mooring or being removed from the terminal and the Master/Owner/Charterer shall be liable for all costs incurred plus all delays or other related costs experienced as a result.

5.04 Safety Inspections

In order to ensure compliance with these requirements, the loading master/CLO shall, before the start of operations and thereafter from time to time during cargo operation, carry out routine safety inspections of the tanker during her stay at the terminal.

5.05 Safety Check List

An approved safety checklist is to be completed prior to commencement of any cargo operation. The safety requirements set out in the checklist are based on the safe practices widely accepted by the oil tanker industry, ISGOTT and OCIMF. It is expected from the master and his crew to adhere strictly to such practices throughout the tanker stay at the

terminal. KNOC Yeosu terminal will also ensure that it's personnel do likewise and co-operate with the master in the mutual interest of safety and efficient operation.

5.06 PSC

Tankers calling at Yeosu/Kwangyang port will have a chance to get PSC inspection it would be relayed upon the agent to provide information such as the date and time.

5.07 De-ballasting and Monitoring of Ballast

All segregated ballast tanks are required to be confirmed free from oil contamination prior to arrival and visually inspected for oil contamination by the Berth Master prior to deballasting through sighting ports on deck where fitted. Double hull SBT vessels not fitted with sighting ports or tank lids should prepare the manhole covers on the ballast tanks so that sighting of ballast water can be achieved.

Deballasting is not to commence without prior permission from the Berth Master and the rate of deballasting shall be such that a safe condition is maintained at all times

Vessel are required to included regular in tank ballast water inspection and overboard checks by all available means as part of routine loading safety checks.
If any contamination of tank ballast or discharged ballast water is noted or suspected during loading, all operation are to be stopped and Berth Master informed immediately.

5.08 Environmental Protection

As per MARPOL 73/78 conventions, West Sea of Korea, due to sensitive environment and location, is categorized to be a Special Area. Tanker in Korean waters should strictly comply with International Regulations relating to the Pollution of the sea by air/vapour and oil and to exercise every precaution to prevent such pollution.

Master is called upon to emphasize to those under his command the compelling need to check valve and line systems before commencement of any cargo or ballasting operations in order that no oil will escape into the sea. It is important that a high degree of vigilance be exercised throughout the period that the tanker is handling cargo or ballast and that line setting should never go unchecked. There are no facilities for receiving tanker's ballast ashore at the terminal. All tanker must have clean segregated ballast for discharge overboard.

To further reduce the transportation of foreign organisms or exotic marine species into Korean waters, tankers are requested to follow an approved ballast water management system that includes changing their ballast at sea, prior to entering the Korean water.

5.09 Vapour Emission Control

All coming vessel to load cargo should be ready to use ship's vapour line for collecting of VOC to shore facility during cargo **loading operation.**

1) Prior to berthing

① Keeping proper positive pressure : Less than 300mmWG(Low pressure)
- Vessel's tank pressure should be released to its minimum(Low pressure) at sea (When depressing tank pressure, ship's vapour line manifold and forward IGS End Line should be used to blow out scale and condensated water inside of vapour line)
- Terminal Regulation : Less than 200mmWG(Low pressure)
- Oxygen content : Less than 8% by volume

② Following devices are to be in good order and operational condition
- Vapour monitoring systems including vapor pressure gauges
- Pressure safety devices such as p/v, breather valves and p/v breaker
- Vent valves such as IG branch valves and associated valves

③ Ready for use of vapor return line
- ANSI type 16"(To prepare reducer if needed)
- Free up port & stb'dside VOC manifold flanges
- Clean up scales or any articles inside of vessel vapour line
- Remove condensated water inside the pipes by draining at Manifold

2) After Berthing

① Blowing out ship's VOC Manifold to check any foreign body inside inert gas pipeline in presence of terminal loading master before connecting terminal VOC Loading Arm(16" × 1 line)

② Terminal loading master will check all drain points on deck IGS line, vapour line manifold and forward IGS End flange to confirm no scale and water left inside.

③ If the results of inspection is not satisfactory, Terminal manager will have the ship de-berthed immediately.

3) Items to be discussed while ship/shore Safety Meeting

① Assurance of max. loading/flow rate per an hour ⇒ 53,000bph
② Normal working vapour pressure on board ⇒ 200~900mmH2O
(In consideration of present vessel's setting limits)
③ Shore setting pressure based on above ②
④ To keep closed loading overall
(If vessel can maintain closed loading even in gauging and sampling)
⑤ Open/Check manifold drain every 2 hrs and gathering drainage.
⑥ Check Hydro Carbon Gas concentration every 1 hr at Vapor Manifold (if needed)

4) Notice to Vessel's Master

1) Vessel should be fully cooperate to protect Terminal DSU(Dock Safety Unit)

2) In case of any delays, costs, expenses and consequential loss that we and/or any third party may suffer by ship's foreign body, such as moisture, scales, soots, among ship's gas inside IG Deck Pipeline, We will issue our protest holding you responsible for all attendant problems.

5.10 Water Depth Survey

1) All coming vessel in laden condition have to operate the echo sounder to check depth of approaching channel and ship's UKC

2) The position should be marked on the recorder when passing Sea-buoy No.7

3) After berthing KNOC Terminal, Berth master should check and examine the record of echo sounder

4) If UKC is less than 2.5m, water depth survey is done by terminal as soon as possible and the Regular Water depth survey is scheduled to conduct on the berth area and approaching channel every 3years by terminal

5.11 Safety Confirmation

1) Vessel Cargo Line Filling Operation before Discharge

All coming vessel for discharging cargo should carry out vessel's on deck cargo line filling operation before discharge under Terminal Loading master's control.

2) Shore Leave

① Shore leave for crews is allowed to use service boat by requesting ship's agent.

② Crew are required to carry valid identification card at all times.

3) Repatriation

Crew changes or repatriation is allowed but senior officer & engineer should be repatriated after completion of all cargo operation.

4) Photographing

Photographing within the terminal premises and jetty area is prohibited.

5.12 International Security Policy

The International Ship and Port Facility Security Code in SOLAS has been enforced since 1st July 2004 and the Port of Yeosu has been fully certified in accordance with the provisions of the regulation. Therefore strict enforcement of security precautions is advised and all suspicious activity in the vicinity of the vessel must be immediately reported to "Yeosu/Kwangyang Port Service".

If the security level of tankers intend to enter KNOC Terminal is lower than port facilities' level, tankers shall not be entered.

Vessel should report a present 'Security Level' to Agency before 3 days before arrival.

Section 6. Appendixes

Master's Declaration of Safety/Ballast Control

Conditions for Using of KNOC Facilities

Ship Information

Agreed Cargo Operation Plan

Ship/Shore Safety Check List

Check List Before Arrival at KNOC Yeosu Terminal

Vapour Emission Control Plan at KNOC Yeosu Terminal

KNOC Yeosu Terminal Approaching Plan

KNOC Yeosu Terminal Customer Satisfaction Survey

Summary of KNOC Yeosu Terminal Information (for Non VLCC)

Summary of KNOC Yeosu Terminal Information (for VLCC)

Master's Declaration of Safety/Ballast Control

Korea National Oil Corporation, Yeosu Marine Terminal

I, as the master of "M/T " do hereby declare as follows.

I hereby acknowledge receipt of a copy of these documents and agree to the instructions set forth there in. I am familiar with the KNOC Yeosu marine terminal information and regulations, especially with provisions of section 3,4,5 accordingly.

I understand that the services and facilities arranged by KNOC terminal, are provided in accordance with the terms and conditions of those rules and that the ship owner and crews will be responsible for any damage or claims which may arise from the use of such services and facilities insofar as such damage or claims are caused by the vessel and/or her owners.

I will consent to proportionally compensate for the loss or damages and incidental burdens incurred to you as a result of the accident if there be any accidents for which my ship is responsible. I am sure my ship has neither dirty ballast water on board, nor dirty ballast is to be discharged at this port. To the best of my knowledge, only segregated ballast water is aboard in my ship and all ballast is carried in permanent ballast tanks having their own pipelines and pumping facilities, of being completely independent of the cargo system.

I confirm again that I faithfully observe and carry out all the requirements contained in this terminal informations booklet for safe operation ordained by your company and will exercise due diligence in relation to the safe cargo operations while my ship is berthed at your terminal.

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Master of " M/T " Terminal Representative

Conditions for Using of KNOC facilities

Korea National Oil Corporation, Yeosu Terminal

1. Safety requirements

1) While at our terminal, responsibility for the safe condition of your ship and the safe conduct of handling by your crew rests with you as master. Nevertheless, since our personnel, property and other shipping may suffer serious damage in the event of accident aboard your ship, we wish, before operations start to seek your full co-operation and understanding on the safety requirements set out in the ship/shore safety check list.

2) Safety requirements are fully described in the "International Safety Guide for Oil ships and Tanker Terminals (ISGOTT)" and it is expected that you and all under your command will strictly comply with them. KNOC personnel will cooperate fully with you the mutual interest of safe and efficient handling.

3) Non-compliance with the safety requirements will be brought to the immediate attention of your responsible officer for corrective action. If corrective action is not taken in a reasonable time, KNOC will adopt such measures as appear most appropriate to deal with the situation and you will be notified by letter of protest accordingly.

4) If you observe any infringement of these safety requirements by terminal staff on board or in the vicinity of your ship, please bring this notice immediately to the KNOC berth master. Should you consider any immediate threat to the safety of your ship arises from any action on the part of KNOC's control, you should demand an immediate stop to cargo handling and other operations as appropriate.

5) Disregarding of the safety requirements can result in your being ordered to vacate the terminal for appropriate action to be taken by the owners/charterers/ operators concerned.

2. Responsibility

1) Master shall remain legally responsible for safety and proper operation of the ship at all times.

2) It is the master's responsibility that no oil pumped or spilled overboard from his ship in the vicinity of the KNOC terminal area. In the event of any spillage or loss of oil from the ship as the result of any act or omission of the ship such as but limited to, pumping of oily water overboard from ballast or bilge, or oil spill during unloading the ship shall be responsible for all costs and expenses of clean-up and for any damage to property or injury to persons resulting from such spillage or oil loss as long as the

spillage or loss is not due to the negligence or breach of contract by KNOC. KNOC reserves the right to take all reasonable measures to clean up any resulting pollution or contractor acting on behalf of the ship or her owner, and will charge the ship for all costs and expenses that are attributable to the negligence or breach of contract by the vessel and/or her owners.

Master's acknowledgement

I, as the master, hereby acknowledge fully this document and terminal information & regulations received before entering by agency designated.

Master of " M/T "

Terminal Representative

Ship Information

Ship's Name:_____ Date:_____

Before the ship arrives, the Master should inform the Terminal of Information as necessary on the following matters plus 1 copy of the ship's particulars and the standard tanker questionnaire

Questionnaire and Answer

1. Estimated time of arrival?

※The Master should inform the Terminal of ETA at least 7 days in advance through the ship's Agent and also notify ETA of 48, 24, 12 hours before arrival

2. Cargo specification?

For Discharging Vessel		For loading Vessel	
Cargo Grade		Last Cargo Grade & API	
API		Cargo Q'ty to be loaded	
Temp(F)		Vessel Experience Factor	
Quantity(Bbls)		Departure draft	

3. Draft and trim on arrival?

Draft FWD		Draft AFT		Trim	

4. Max. draft and trim expected at Terminal?

Draft FWD		Draft AFT		Trim	

5. Any advice from the Master on tug assistance required? Yes/No (if yes, describe in details)

6. Ship's tank are in an inert condition? Yes/No (if no, describe in details)

7. (Only for loading Vessel) When and where was ship's Vapour Emission Control System(Vapour Manifold) used during loading operation recently?
If not used, is the vapour line drain system working properly?
*** Forward vapour manifold on portside to be connected**

8. IGS fully operational? Yes/No (if no, describe in details)

*** Please run scrubber pump 3hours before arrival KNOC Terminal for flushing**

9. Oxygen content of cargo tanks?

Tank No.	1	2	3	4	5	6	7	Slop
PORT								
CENTER								
STBD								

10. Any requirement for tank cleaning or slop disposal? Yes/No (if yes, describe in details)

11. Any defect of hull, bulkhead, valve, pipeline, machinery or equipment? Yes/No(if yes, describe in details)

Questionnaire and Answer
12. Any repairs which could delay cargo operation? Yes/No (if yes, describe in details) ***Date of last Dry dock & Place :**
13. COW is to be employed? Yes/No (if yes, describe the tank No. to be crude oil washed)

Tank No. to be COW	

14. Ship's manifold details?			
No.		Size	

15. Ship has external impressed cathodic protection? Yes/No
16. Preferred order of cargo operation?

Preferred order of Shore	
Preferred order of Ship	

17. Information on quantity and nature of slops, dirty ballast and of any contamination by chemical additives?

	Quantity	Quality
Slop		
Dirty Ballast		

18. Side to be moored alongside: normally port side
19. Mooring lines on Drum?

Description	No.	Material	Dia.	Length	Breaking Strength
F'cle					
FWD main deck					
AFT main deck					
Poop					

※Delete Yes or No as appropriate

Declaration

I the undersigned have checked, where appropriate, the items on this information and the entries I have made are correct to the best of my knowledge.

Name :
Rank :
Signature :

AGREED CARGO OPERATION PLAN

Ship's Name: _____

Berth: KNOC YEOSU TERMINAL Port: YEOSU, KOREA

Date of Arrival: _____ Time of Arrival: _____

Items and Agreement

1. Cargo specifications

Cargo			
API			
Temp			
Quantity			
Ship's Tank			
Shore Tank			

2. Order of cargo operation :

3. Cargo Line Filling Operation(In case of vessel discharge only)

4. Tank venting requirement
   ① Vapour emission to atmosphere not allowed
   ② Fixed vent system should be used

5. No. and sizes of loading arms to be connected

No.		Size	16"

6. Transfer rate : ※ Shore Loading Arm Flow Capacity : 27,000bbls/hr/ea

Initial rate		Max. rate		Topping off rate	

7. Max. allowable pressure at ship's manifold
   - **for discharge : 8.1 Kg/㎠ at ship's rail(Cavern: 64,000bbls/hr, Tank : 54,000bbls/hr)**
   - **for loading : 3.0 Kg/㎠ at ship's rail(Cavern and Tank : 54,000bbls/hr)**

8. Standby time for normal pump stopping
   - **Ship's Pump(in Discharge operation) :**
   - **Shore Pump(in loading operation) :**

9. Communication system for cargo operation and the signal for emergency stop

Communication System	Channel	Call Sign	Emergency Signal
Walkie-Talkie	Ch. 72	· Ship's Name · Terminal or Loading Master	· Verbal communication First · One or more long blasts not less than 10 sec duration, if failure verbal communication

10. Limitations of the movement of arms

Longitudinal	± 2 meters fore & aft
Lateral	+ 2 meters from the fenders
Vertical	+ 21.5 meters from the sea level

11. Disposition, compositing and quantity of ballast, time required for ballast operation.

Tank No.							
Quantity							
Quality							
Time of Start							
Time Required							

Items and Agreement

12. Q'ty, quality and disposition of slops

Tank No				
Quantity				
Quality				

13. Any unaccountable change of ullage in ship's tank since loading

Tank No.					
Load Port					
Disch. Port					

14. Water dips in cargo tanks

Tank No.					
Quantity					

15. COW is required :

Tank No.							
Cycle							

16. Time of Shore tank change over

17. Pipeline clearing for cargo operation

18. Max. trim and draft, light freeboard expected at the terminal

Trim	6.0m	Draft		Freeboard	Below 21.5m at mid-ship

19. Tidal current information

1st day( )			2nd day( )			3rd day( )		
Slack	Maximum		Slack	Maximum		Slack	Maximum	
h m	h m	kn	h m	h m	kn	h m	h m	kn

※ +: Flood, 353°, −: Ebb, 182°

20. Standby Tug assistance

Communication System	Channel	Call Sign
Marine VHF	Ch. 08, 72	

Declaration

We the undersigned have checked, where appropriate jointly, the items on this plan and have satisfied ourselves that the entries we have made are correct to the best of our knowledge.

For Ship	For Shore
Name :	Name :
Rank :	Rank :
Signature :	Signature :
Date and Time :	

SHIP/SHORE SAFETY CHECK LIST

Ship's Name: M/T

Berth: KNOC YEOSU TERMINAL Port: YEOSU, KOREA

Date of Arrival: Time of Arrival:

INSTRUCTION FOR COMPLETION:

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

A box in the columns 'ship' and 'terminal' indicates that checks should be carried out by the party concerned.

The presence of the letters **A**, **P** or **R** in the column 'Code' indicate the following:

A-any procedures and agreements should be in writing in the remarks column of this Check List or other mutually acceptable form. In either case, the signature of both parties should be required.

P-in the case of a negative answer, the operation should not be carried out without the permission of the Port Authority.

R-indicates items to be rechecked at intervals not exceeding that agreed in the declaration

Part 'A'-Bulk Liquid General-Physical Checks

Bulk Liquid-General	Ship	Terminal	Code	Remarks
1. There is safe access between the ship and shore.	☐	☐	**R**	A life-bouy should be available on board near the gangway
2. The ship is securely moored.	☐	☐	**R**	
3. The agreed ship/shore communication system is operative.	☐	☐	**A R**	System : L/Master & CLO Stay O/B all the time Backup System : VHF Ch.72
4. Emergency towing-off pennants are correctly rigged and positioned.	☐	☐	**R**	Fully slack on deck and have ready to use directly in case

5. The ship's fire hoses and fire-fighting equipment are positioned and ready for immediate use	☐		R	Ship/Shore fire system should be pressurized or be capable of being pressurized within 5min. notice.
6. The terminal's fire-fighting equipment is positioned and ready for immediate use.		☐	R	Ship/Shore fire system should be pressurized or be capable of being pressurized within 5min. notice.
7. The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.	☐			
8. The terminal's cargo and bunker hoses or arms in good condition, properly rigged and appropriate for the service intended.		☐		Longitudinal : 2m Lateral : 2m
9. The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection	☐	☐		
10. Scuppers and save-all on board are effectively plugged and drip trays are in position and empty	☐		R	
11. Temporarily removed scupper plugs will be constantly monitored	☐		R	Accumulation of water on deck and drip trays should be drain properly and plugged again immediately after draining under controlled by Loading Master
12. Shore spill containment and sumps are correctly managed		☐		
13. The ship's unused cargo and bunker connection are properly secured with blank flange fully bolted	☐			
14. The terminal's unused cargo and bunker connection are properly secured with blank flange fully bolted		☐		
15. All cargo, ballast and bunker tank lids are closed	☐			Closed ullaging and sampling system should be used
16. Sea and overboard discharge valves, when not in use, are closed and visibly secured	☐			
17. All external doors, ports and windows in the accommodation stores and machinery spaces are closed. Engine room vents may be open	☐		R	They should be kept closed not in use but at no time should they be locked
18. The ship's emergency fire control plans are located externally	☐			Crew list and Cargo plan should be included in enclosure
Inert Gas System	Ship	Terminal	Code	Remarks
19. Fixed IGS pressure oxygen content recorders are working	☐		R	

20. All cargo tank atmospheres are at positive pressure with oxygen content of 8% or less by volume	☐		P R	
Bulk Liquid-General	Ship	Terminal	Code	Remarks
21. The ship is ready to move under its own power	☐		P R	Ship should be able to move under its own power with short notice
22. There is an effective deck watch in attendance on board and adequate supervision of operation on the ship and in the terminal	☐	☐	R	Min. manning required at all times as follows: Manifold : 1crew Mooring tending : 1crew CCR : 1 officer Jetty : 1 operator
23. There is sufficient personnel on board and shore to deal with an emergency	☐	☐	R	More than 2/3 of crew should be on board at all times at the berth
24. The procedures for cargo, bunker and ballast handling have been agreed	☐	☐	A R	As per agreed cargo operation plan
25. The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood	☐	☐	A	○ One(1) or more long blasts of not less 10 seconds duration ○ 3 Times "STOP" to L/Master or CLO
26. Material Safety Data Sheets (MSDS) for the cargo transfer have been exchanged where requested	☐	☐	P R	
27. The hazard associated with toxic substances in the cargo being handled have been identified and understood	☐	☐	R	
28. An International Shore Fire Connection has been provided.	☐	☐		
29. The agreed tank venting system will be used.	☐	☐	A R	Method : Vapour emission to atmosphere not allowed in case of discharging
30. The requirement for closed operation have been agreed	☐	☐	R	Ullage and Sighting holes should not be open. Ullaging and sampling should be carried out through a vapour lock system
31. The operation of the P/V system has been agreed	☐			
32. Where a vapour return line is connected, operating parameters have agreed	☐	☐	A R	
33. Independent high level alarms, if fitted, are operational and have been tested	☐		A R	
34. Adequate electrical insulating means are in place in the ship/shore connection		☐	A R	
35. Shore lines are fitted with an non-return valve, or procedure to avoid back filling have been discussed.		☐	P R	

36. Smoking rooms have been identified and smoking requirements are being observed.	☐	☐	A R	Ship smoking area : Smoking room Jetty smoking area : Jetty Office
37. Naked light regulations are being observed	☐	☐	A R	Unless certified as intrinsically safe should not be used
38. Ship/Shore telephones, mobile phones and pager requirements are being observed.	☐	☐	A R	
39. Hand torches (flashlights) are of an approved type.	☐	☐	R	Open fire should not be used unless construction, location and ventilation system provides protection against entry of flammable gases
40. Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switch off.	☐		R	
41. Portable VHF/UHF transceivers are of an approved type.	☐	☐	R	Unless certified as intrinsically safe should not be used
42. The ship's main radio transmitter aerials are earthed and radars are switched off.	☐			The ship's main transmitter and radar should not be used at the berth
43. Electric cables to portable electrical equipment within the hazardous area are disconnected from power	☐	☐	R	The portable electrical equipment should not be used and preferably removed from hazardous zone
44. Window type air conditioning units are disconnected.	☐			
45. Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapours, are closed	☐	☐	R	Air conditioner should be operated in re-circulation mode for preventing air drawing from outside
46. Measures have been taken to ensure sufficient mechanical ventilation in the pump room	☐	☐	R	Pump room ventilation system should be kept running throughout the cargo operation
47. There is provision for an emergency escape.	☐	☐		Shore gangway and ship's stb'd gangway should be ready to use in case
48. The maximum wind and swell criteria for operation have been agreed	☐	☐	A	Stop cargo at 27 kts wind velocity Disconnect at 29 kts wind velocity Unberth at 39 kts wind velocity
49. Security protocols have been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate	☐	☐	A	
50. Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting or purging ship's tanks, or for line clearing into the ship	☐	☐	A P	No Nitrogen Supply System installed
Inert Gas System	Ship	Terminal	Code	Remarks

51. The IGS is fully operational and in good working order.	☐			The pressure in any tank should not be allowed to fall below atmospheric pressure under any circumstances
52. Deck seals, or equivalent, are in good working order.	☐			
53. Liquid levels in pressure/vacuum brakers are correct.	☐			
54. The fixed and portable oxygen analysers have been calibrated and are working properly	☐			
55. All the individual tank IG valves(If fitted) are correctly set and locked	☐			
56. All personnel in charge of cargo operations are aware that, in the case of failure of the inert gas plant, discharge operations should cease and the terminal be advised	☐			
Crude Oil Washing	Ship	Terminal	Code	Remarks
57. The Pre-Arrival COW check-list as contained in the approved COW manual, has been satisfactorily completed	☐			
58. The COW check-lists for use before, during and after COW, as contained in the approved COW manual, are available and being used.	☐		**R**	
Tank Cleaning	Ship	Terminal	Code	Remarks
59. Tank cleaning operations are planned during the ship's stay alongside the shore installation	Yes/No	Yes/No		Not allowed at the berth
60. If 'yes', the procedures and approvals for tank cleaning have been agreed.				
61. Permission has been granted for gas freeing operations.	Yes/No	Yes/No		

※Delete Yes or No as appropriate

Declaration

We, the undersigned, have checked the above items in Part A and B, and where appropriate Part C or D, in accordance with the instructions, and have satisfied ourselves that the entries we

have made are correct to the best of our knowledge.
We have also made arrangements to carry out repetitive checks as necessary and agreed that those items with code '**R**' in the Check-List should be re-checked at intervals not exceeding ____2____hours.

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

For Ship	For Shore
Name :	Name :
Rank :	Rank :
Signature :	Signature :
Date :	Date :
Time :	Time :

REPETITIVE SHIP/SHORE SAFETY CHECK LIST

Date/Time					
Initials for Ship					
Initials for CLO					
Initials for Shore					
Date/Time					
Initials for Ship					
Initials for CLO					
Initials for Shore					
Date/Time					
Initials for Ship					
Initials for CLO					
Initials for Shore					
Date/Time					
Initials for Ship					
Initials for CLO					
Initials for Shore					

Check List before Arrival at KNOC Yeosu Terminal

Please check, test and perform following items and report the results at least 1 day prior to arrival at Korea National Oil Corporation(Hereinafter "KNOC") Yoesu Terminal via agent.

TO : KNOC Yeosu Terminal
ATTN : Berth Master
FROM : Master of M/T_____
DATE :

A. ANTI SEA POLLUTION

1. Flushed/cleaned fire/general service pumps, fire/general service lines, IGS scrubber/deck water seal and associated lines, bilge overboard discharge lines, all auxiliary pumps and pipelines which could be contaminated with oil:

2. Tested engine with full astern before arrival at Yeosu Terminal so as to expel trapped oil from sea chests and overboard discharge lines if doubted:

3. All bilge/slop valves (Engine Room, Main Pump Room, Aux. Pump Room, Steering Gear Room) closed and lashed:

4. Blind plates in stripper overboard lines are:

5. Any oil stains on deck especially on winch beds:

6. Last inspection date of cargo lines which tested to 110% or more for the working pressure of the system included pipe lines outside gate valve:

7. Stern tube sealing tightness:

8. Any oil leaks from rudder post stuffing box:

9. Last inspection date of internal survey of IGS Scrubber:

10. IGS Scrubber to be washed more than 1 hour before entering Yeosu Terminal:

B. ANTI AIR POLLUTION

1. Soot blowing to be performed more than 2 times before entering Yeosu Terminal:

2. Ullage hole and hatch cover tightness:

3. Breather valve function:

4. IG line gas tightness:

5. All cargo tanks pressure to be maintained below 300 mmAq at a time of arrival port :

C. CARGO PUMPS

1. Any oil leaks:

2. All gauges condition(Delivery, Suction) including stripping pump and eductor:

3. Revolution meter indicating:

4. Bearing and casing temperature thermometers fitted:

5. Emergency stop, high temperature and over speed trip function:

D. PUMP ROOM

1. Any water in pump, strippers, strainers and pertinent lines:

2. Any oily bilge:

3. Any oil stain and oily waste:

4. Any flammable gas:

5. Bilge high alarm function:

E. IGS

1. IG fans and motors condition:

2. Alarms and interlocks condition:

3. Meter indicating (Main line press., Scrubber water flow, Deck seal water flow, IG Temperature, Fan outlet press., O2 Analyzer):

4. P/V Breaker water level checked:

5. Please depress tank pressure to low(Less than 300mmWG) before arrival port :

F. VALVE

1. Lashing ropes prepared for cargo, sea and COW Related manual valves:
2. All cargo, Sea and COW Related valves tightness:
3. Check valve fitted to each pump:
4. Safety valve (Press. Release) fitted to each pump and setting _____ KG/CM2

G. LEVEL GAUGE

1. Cargo, Ballast and FO tanks level gauges function:
2. High and High-High Alarm function:

H. HYDRAULIC UNIT

1. Any oil leaks from unit and pipelines:
2. All hydraulic valves function:

I. MACHINERY AND EQUIPMENT

1. Fire fighting equipment:
2. Any defect of machinery or equipment:

J. MOORING LINE AND WINCH

1. Checked winch brake holding condition:
2. Any system or any hydraulic fluid leaks from mooring equipment:
3. Mooring lines condition:
4. Right direction of reeling on winch drum:
5. Should be same size and material for all leads in the same service:
6. If fiber tails on mooring wire fitted, tail rope and shackle has a breaking strength at least 25% greater than that of the wire line to which it is attached:

K. CARGO AND BALLAST TANK

1. Remarkable changes of ullages in cargo tanks:

2. Water content in cargo:

3. Any escape of oil into ballast tank:

4. Any hull, bulkhead, valve or pipeline leaks:

(Note for Terminal)

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Master of " M/T " Terminal Representative

Vapour Emission Control Plan at KNOC Yeosu Terminal

(Only for vessl to load cargo)

1. Loading Specification

1) Cargo Grade : (API : , Temp : F)

2) Q'ty :

3) Date range :

4) Ship's Name :

2. Vessel's Preparation

1) Prior to berthing

① Keeping proper positive pressure : Less than 200mmWG(Low pressure)

- Vessel's tank pressure should be released to its minimum(Low pressure) at sea **(When depressing tank pressure, ship's vapour line manifold and forward IGS End Line should be used to release tank pressure for blowing out scale and condensated water inside of vapour line)**
- Terminal Regulation : Less than 200mmWG(Low pressure)
- Oxygen content : Less than 8% by volume

② Following devices are to be in good order and operational condition

- Vapour monitoring systems including vapor pressure gauges
- Pressure safety devices such as p/v, breather valves and p/v breaker
- Vent valves such as IG branch valves and associated valves

③ Ready for use of vapor return line

- ANSI type 16"(To prepare reducer if needed)
- Free up port & stb'dside VOC manifold flanges
- Clean up scales or any articles inside of vessel vapour line
- Remove condensated water inside the pipes by draining at Manifold

2) After Berthing

① Blowing out ship's VOC Manifold to check any foreign body inside inert gas pipeline in presence of terminal loading master before connecting terminal VOC Loading Arm(16" × 1 line)

② Terminal loading master will check all drain points on deck IGS line, vapour line manifold and forward IGS End flange to confirm no scale and water left inside.

③ If the results of inspection is not satisfactory, Terminal manager will have the ship de-berthed immediately.

3) Items to be discussed while ship/shore Safety Meeting

① Assurance of max. loading/flow rate per an hour ⇒ 53,000bph

② Normal working vapour pressure on board ⇒ 200~900mmH2O
(In consideration of present vessel's setting limits)

③ Shore setting pressure based on above ②

④ To keep closed loading overall
(If vessel can maintain closed loading even in gauging and sampling)

⑤ Open/Check manifold drain every 2 hrs and gathering drainage.

⑥ Check Hydro Carbon Gas concentration every 1 hr at Vapor Manifold (if needed)

3. Notice to Vessel's Master

1) Vessel should be fully cooperate to protect Terminal DSU(Dock Safety Unit) through above Item 2. "Vessel's Preparation" 1)~3).

2) In case of any delays, costs, expenses and consequential loss that we and/or any third party may suffer by ship's foreign body, such as moisture, scales, soots, among ship's gas inside IG Deck Pipeline, We will issue our protest holding you responsible for all attendant problems.

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Master of " M/T " Terminal Representative

KNOC Yeosu Terminal Approaching Plan

It is the sole responsibility and authority of tanker's master to monitor pilot while tanker ship is being on the way to berth KNOC Yeosu terminal for preventing accident. This plan is for reference and for details, please have a short briefing with pilot regarding approaching speed and pilotage when pilot comes on board.

☐ Passage Plan

		VLCC		Non VLCC
		Laden	Ballast	
P/S ~ Buoy "C"	Dist.	5mile	5mile	5mile
	Speed	**abt. 12kts**	**abt. 13kts**	**abt. 10kts**
	Time	35~45min.	35~45min.	35~45min.
Buoy "C" ~ No.1	Dist.	2.5 mile	2.5 mile	2.5 mile
	Speed	**12~10kts**	**13~11kts**	**11kts**
	Time	15~20분	10~15분	10~15분
Buoy No.1 ~ No.3	Dist.	2mile	2mile	2mile
	Speed	**10~8kts**	**11~9kts**	**9kts**
	Time	15~20min.	10~15min.	10~15min.
Buoy No.3 ~ No.5	Dist.	1mile	1mile	1mile
	Speed	**8~6kts**	**9~7kts**	**7kts**
	Time	10~15min.	5~10min.	5~10min.
Buoy No.5 ~ No.7	Dist.	1.5mile	1.5mile	1.5mile
	Speed	**6~4kts**	**7~5kts**	**5kts**
	Time	20~25분	15~20분	5~10분
Buoy No.7 ~ Jetty 1L	Dist.	1mile	1mile	1mile
	Speed	**4~2kts**	**5~3kts**	**3kts**
	Time	20~30min.	15~20min.	15~20min.
Total	Dist.	13mile	13mile	13mile
	Time	115′~155′	90′~125′	90′~125′

☐ Berth Approaching Plan

		VLCC		Non VLCC
		Laden	Ballast	
Jetty 1L ~ 30m	**Speed**	**30cm/sec**	**30cm/sec**	**30cm/sec**
	Angle	15°	15°	15°
30m ~ 20m	**Speed**	**15cm/sec**	**15cm/sec**	**15cm/sec**
	Angle	10°	10°	10°
20m ~ 10m	**Speed**	**10cm/sec**	**10cm/sec**	**10cm/sec**
	Angle	5°	5°	5°
10m ~ Berth	**Speed**	**5cm/sec**	**5cm/sec**	**5cm/sec**
	Angle	3°	3°	3°

☐ Tug Boat Rendezvous Plan

		VLCC		Non VLCC
		Laden	Ballast	
Buoy No.5 ~ No.7	Made Fast	**4 Tugs**	**4 Tugs**	**2~3 Tugs**
	Assist	2 Tugs	1 Tugs	1~2 Tugs

I, as the master, hereby acknowledge fully and confirm that the above mentioned "KNOC Terminal Approaching Plan" shall be observed and carried out for safe berthing operation while my ship is being on the way to KNOC Terminal.

Master of " M/T "

KNOC Yeosu Terminal Customer Satisfaction Survey

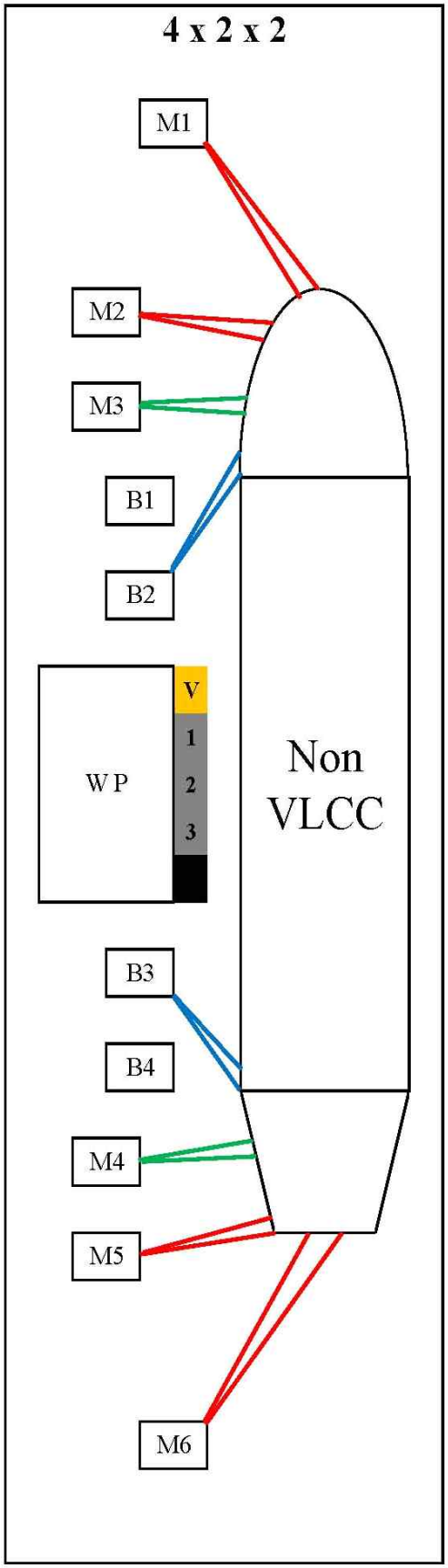
It is our aim to provide you the highest standard of service and we appreciate if you comment our performance by filling up of this form. Thank you for your cooperation.

Date	
Ship's Name	
Master's Name	

No.	Description	Excellent	Good	Fair	Poor
1	Pilotage				
2	Mooring Operations				
3	Terminal Operations				
4	Performance of Loading Master				
5	Performance of Cargo Liaison Officer				
6	General Impression of KNOC Terminal				
7	Performance of Cargo Surveyor				
8	Performance of Ship's Agency				
9	Will you recommend others to do business with this terminal?				
	☐ Yes, I will do so.				
	☐ Yes, I will do so, if someone ask.				
	☐ No, I am not interested.				
10	Please provide any additional comments or suggestions to improve our service. (Write on back if necessary)				

KNOC YEOSU TERMINAL INFORMATION

(For Non VLCC)



Mooring Arrangement	
Ship's Size	Below 160,000 SDWT (Non VLCC)
Head/Stern Line	4
Breast Line	2
Spring Line	2
Tugs assistance	3
Order of made fast	Spring→Breast→Head/Stern line
Mooring Boat Available	

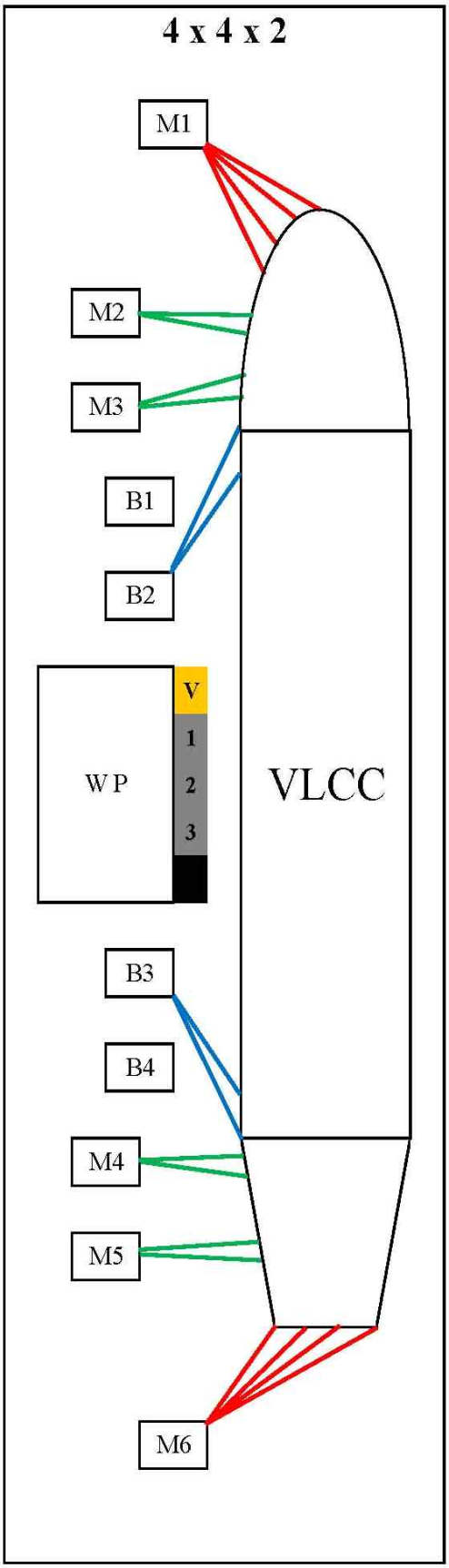
Vessel Qualifications	
Ship's Age	Not more than 22 years
Ship's Size	Min. 65,000 ~ Max. 325,000 SDWT
PBL(in Ballast)	Min. 100.0 m
Major Approval	Min. 2 Major Approval

Terminal Description	
Max. Loading Rate(to Ship)	54,000 Bbls/Hr (3.0 Kg/cm^2)
Max. Unloading Rate(to Shore)	54,000 Bbls/Hr (7.0 Kg/cm^2)
Loading Arm	Cargo - 16 " x 3 (■)
	Vapour - 16 " x 1 (■)
Shore Pipe Line	40" x 2km
Draft Restriction	Max. 21.0m
VHF CH.	72
Shore Gangway(■) Available	

Weather Limits				
Description	Berthing	Stop Cargo	Discon' Arm	Unberthing
Wind Speed	less 10.0m/sec	14.0m/sec	15.0m/sec	20.0m/sec
Wave Height	less 1.0m	over 2.0m	over 2.5m	over 3.0m
Current	less than 0.5kts			
Visibility	over 1.0 mile			
Water depth	23.5m at LLW			
Salinity	1.025			

KNOC YEOSU TERMINAL INFORMATION

(For VLCC)



Mooring Arrangement	
Ship's Size	Over 160,000 SDWT (VLCC)
Head/Stern Line	4
Breast Line	4
Spring Line	2
Tugs assistance	4 ~ 6
Order of made fast	Spring→Breast→Head/Stern line
Mooring Boat Available	

Vessel Qualifications	
Ship's Age	Not more than 22 years
Ship's Size	Min. 65,000 ~ Max. 325,000 SDWT
PBL(in Ballast)	Min. 100.0 m
Major Approval	Min. 2 Major Approval

Terminal Description	
Max. Loading Rate(to Ship)	54,000 Bbls/Hr (3.0 Kg/cm^2)
Max. Unloading Rate(to Shore)	54,000 Bbls/Hr (7.0 Kg/cm^2)
Loading Arm	Cargo - 16 " x 3 (■) Vapour - 16 " x 1 (■)
Shore Pipe Line	40" x 2km
Draft Restriction	Max. 21.0m
VHF CH.	72
Shore Gangway(■) Available	

Weather Limits				
Description	Berthing	Stop Cargo	Discon' Arm	Unberthing
Wind Speed	less 10.0m/sec	14.0m/sec	15.0m/sec	20.0m/sec
Wave Height	less 1.0m	over 2.0m	over 2.5m	over 3.0m
Current	less than 0.5kts			
Visibility	over 1.0 mile			
Water depth	23.5m at LLW			
Salinity	1.025			