

MARINE OPERATIONS MANUAL

REV 01 : Date : 1-1-2003

**LAKHIGAM BULK IMPORT TERMINAL,
GULF OF KHAMBHAT, STATE OF GUJARAT**



DAHEJ HARBOUR AND INFRASTRUCTURE LTD.

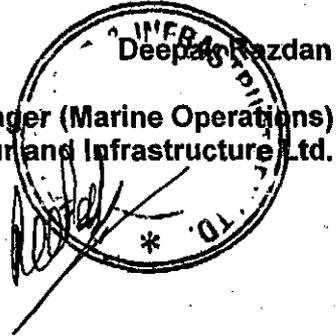
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FOREWORD

The Jetty at Lakhigam is owned and operated by DHIL as an important facility for import of raw materials for the integrated Birla Copper smelter plant at Dahej in Gujarat. The Jetty also serves as exit point for bulk commercial cargo. The Berth operator, in compliance with international recommendations is providing a general background of information for ships masters and agents by way of this manual. It outlines the requirements of the berth operator, drawing attention to the berthing, mooring and cargo handling procedures to be adopted. It also outlines the facilities and assistance available to visiting masters to ensure safety of ship and the berth.

This manual does not supersede or replace in any way other official publications relating to navigation in the Gulf of Khambhat or any navigation requirements of the State of Gujarat to which reference should be made as necessary.

**Asst. General Manager (Marine Operations)
Dahej Harbour and Infrastructure Ltd.**



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GENERAL DESCRIPTION

Lakhigam Jetty is situated on the East Side of the Gulf of Khambhat in Arabian Sea in the State of Gujarat at Latitude 21 degrees 42.0' N, Longitude 072 degrees 32.0' E (Approx.) to the south of the port of Dahej operated by Gujarat Maritime Board. The Jetty provides a single berth for ships of 11,000 - 60,000 DWT. Vessels of 60-70,000 dwt may be berthed as advised by Terminal authorities / Pilot. The Jetty is 210 meters long and 24 meters wide. The berthing face of the Jetty is 129.4 meters long. The berth aligned 176/356 true, is connected to dry land by 2470 Meters, long Pier running E/W on concrete pile supports & rubble bund which is 10.5 M wide. Face of jetty is protected by 4x6m air filled Yokohama fenders. There is ample room for manoeuvring in the vicinity of the berth and ships can berth either port or starboard side-to. Vessels of 70,000 DWT are mostly berthed preferably in fair weather only. The range and strength of the tides at Lakhigam Jetty and in the approaches are unusually high. A tidal current of as much as 7 knots can be met on occasions (normally it is between 1.5 to 3.5 knots), with a tidal range of as much as 9 meters. Masters are particularly advised to pay close attention to their mooring at all times.

Vessels, which are not maintained in good order, may be refused entry to port.

Masters are also advised to pay close attention to Vessel Traffic Service that may be in use in the area and notice of inspection issued from time to time in the interest of Maritime Security.

ARRIVAL INFORMATION REQUIRED

The owner, master or their agents should furnish at least 48 hours prior to arrival at Dahej Jetty the following

1. Length overall.
2. Length between perpendiculars.
3. Beam.
4. Dead weight tonnage.
5. Draft on arrival For'd and aft.
6. Information about damage on board to ship equipment or her cargo.
7. Last port of call.
8. Number of good mooring ropes available forward & aft mooring stations.
9. Confirmation of flange type & size for Liquid Ammonia, Phosphoric Acid tankers.

PORT AND TERMINAL DOCUMENTS REQUIRED

All vessels calling at Lakhigam Jetty shall have the following documents ready :

1. All statutory certificates including safe manning document, ISM code certificate and last port state control inspection report and STCW95 certificate of competency of the crew.
2. Cargo manifest.
3. Last Port Clearance.
4. Cargo certificate from port of loading if any (Quality certificate of Cargo).

Port Rules are annexed to this manual for guidance.

LOCAL TIME

Local time is GMT + 5 Hours 30 Minutes.

NOTICE OF READINESS

It is the practice of the port to accept notice of readiness when the vessel is arrived and during office hours only.

PILOTAGE

Pilotage is compulsory. Licensed pilots board in position Latitude 21 degrees 41.0' N, Longitude 072 degrees 29.0' E (approx.) and called DHIL. Pilot boarding ground. Pilot information card is required to be filled in prior to berthing / unberthing operations.

The master of every vessel bound for DHIL Jetty shall provide adequate lee to the pilot boat for boarding pilot and rig IMO approved pilot ladder. Where required (above 9m height), combination pilot ladder shall be provided.

ACCEPTABLE DIMENSIONS, TRIM AND DRAFTS

As a minimum following limitations are checked prior to accepting a vessel: Maximum LOA should be not more than 225 m single decker vessel.

Deepest drafts in the approaches to the berth should not exceed 13.5 meters. Minimum depth in port approaches is 9.9 m one mile NW of pilot boarding ground.

On the berth maximum drafts of a vessel should not exceed 13.5 meters. Vessel should never be trimmed more than 1.5 meters.

Permissible Air draft at the berth is 26 meters. The berth is designed to accept maximum 70,000 DWT and minimum 11,000 DWT vessel.

At departure there should be sufficient ballast to submerge the propeller and the vessel should not be trimmed more than 2.5m by the stern.

NAVIGATION IN THE PORT APPROACHES

Dahej port anchorage is situated about 5 miles north of DH IL Jetty while Bharuch Roads anchorage is situated about 4 miles south of the Jetty. Dahej anchorage is for lighterage of bulk commodity while, Bharuch anchorage is the IPCL berth waiting point for their liquid and LPG cargoes handled at Jageshwar Jetty. To the North West is Bhavnagar Port anchorage where lighterage of cargoes is carried out for Bhavnagar Port. The local fishermen are rarely met. Lakhigam Jetty lies in Latitude 21 degrees 42' N Longitude 72 degree 30.6' E (approx.). Its approaches are shown on Indian chart No. 254 & 2082 and described in Admiralty pilot NP38. Plan of port is annexed to the manual for ready reference. Monthly tide tables can be obtained from shipping agent or DH IL port office.

DHIL jetty is normally all weather port and pilot is available at all times subject to approved passage plan.

Port conservancy is responsibility of GMB including periodical scrutiny of Jetty area, navigation approaches, navigation aids, information on changes in sea / river bed affecting the Jetty, hydrographic records and updating of Chart No.2082. DHIL arranges to broadcast navigation warning affecting approaches to DHIL terminal periodically and advise local shipping agents well in time.

ANCHORAGE

Vessels arriving for the Lakhigam Jetty of DH IL should wait 1 nautical mile west of the berth in Lat. 21 degrees 42' minutes N 72 degrees 29; minutes E. in about 20 meters depth of water after entering Dahej Port limit and report to DH IL control. The holding ground is good.

BERTHING AND UNBERTHING

The berthing and unberthing will take place usually at slack water time. Vessels may berth with head North or head South. Jetty is provided with floating 4.5 x 6.0 M fenders. Berthing / Unberthing is preceded by passage planning chaired by GM (Marine operations), Pilot and Master especially for vessels of 45,000 - 70,000 DWT.

HARBOUR TOWAGE

2 Tugs of 40 tonne bollard pull are available at the Terminal of DH IL at Lakhigam and the Pilot will order them. Master / Agent should give 5 days & 3 days notice of ETA of the vessel for making necessary preparations.

Pilot will decide on how many Tugs are required

Third Tug is available for assistance in contingency affecting safety of life, vessel, cargo or Jetty.

In case of emergency Master to contact Pilot who will make arrangements for tugs.

The ship, the pilot and tugs remain in constant touch with each other on V.H.F channel 68 /6.

Tugs will be used during berthing and unberthing operations as required by the Pilot.

MOORING ARRANGEMENT

It is proposed that all vessels will be moored to Jetty (as shown in diagram I attached) with 20 Nos. 64 MMPoly Propylene ropes i.e.

- 4 - Head Lines
- 3 - For'd Breast Lines
- 3 - Back springs For'd
- 3 - Back Springs Aft
- 3 - Breast Lines Aft
- 4 - Stern Lines

Also an alternative mooring arrangement will be available as shown in diagram 11 where 4 lines will be from shore winches. 4 Nos. lines of 72 MM, Super Steelite Marlow lines with 10 Meter tail of 120 MM Marlow torqline ropes can be supplied to vessel subject to ship's Master indemnifying Jetty operators from any or all liabilities arising thereof and the vessel still remaining responsible for tending to the Mooring lines/ Safe Mooring.

All Masters are hereby informed that all the Mooring ropes / wires used for mooring at DHIL Jetty are in good and sound condition. Any frayed lines may lead to vessel breaking moorings and going adrift.

TIDES, CURRENTS, WINDS AND WAVES

At the Jetty current flows in 174 deg. T to 186 deg. T during ebb tide and 353 to 359 T during flood tide and tidal range of 11 M is observed. During Neap tides current up to 3 Knots is experienced whiles at spring, tides up to 7 knots have been observed.

Wind direction is South, South East to North, NorthWest and upto 18 Knots winds are common. Tidal winds are experienced from NE-SW direction. Predominantly SSW to Westerly wind is common during SW monsoon. The locally generated wave climate at the Jetty is generally mild. In Period October to March wave heights hardly exceed 0.75 Meter and the Maximum wave height is less than 1.5 Meters.

In April and May months wave height of (Approx. 6 days) 1.5 M to 1.75 M may occur. However a wave height of above 1.0 M is exceeded during 11.6% of time only.

In the monsoon period June to September wave heights exceed 1.0 M for 27.7% time (30 days). Even in the monsoon period a height of 1.5M is seldom exceeded for 0.82% time.

LIMITING CONDITIONS OF SAFE BERTHING AND MOORING

Vessels will be berthed at slack water time or when the current is up to 1.5 knots. However, if the wave height is more than 1.5 meters or wind speed (gusts) more than 30 knots vessels will not be berthed or allowed to remain on berth.

ACCEPTABLE BERTHING VELOCITY

The Jetty is designed for impact loads not exceeding the following:

| <u>Vessel DWT</u> | <u>Berthing Speed</u> | <u>Maximum Berthing Angle</u> |
|------------------------------|----------------------------------|--|
| 11,000 | 2.5 knot | 10 degrees |
| 20,000 | 2.5 knot | 10 degrees |
| 30,000 | 2.5 knot | 10 degrees |
| 60,000 | 2.0 knot | 6 degrees |
| 70,000 | 0.5 knot | 2 degrees |

Approach velocity for contact with fenders is recommended to be 0.2m/sec (0.5 Kt.)

BERTHING POSITION FOR CARGO HANDLING

Ships on the berth will not be required to warp forward of aft except where required to accommodate a 70,000 dwt dry bulk cargo vessel with the permission of terminal manager and under pilot's advice.

JETTY PARTICULARS

A plan showing position of Bollards, fenders and mooring arrangement is attached as Appendix. Mooring arrangements will be as described earlier i.e. in Harbour towage. All lines used for moorings shall be of good condition. Old and frayed lines should not be used for moorings to avoid parting of lines, thereby damaging Jetty and / or vessel.

CARGO HANDLING

Jetty has one FIGEE and one TRF Kangaroo type Ship unloader for discharge of solid bulk cargoes.

The grab capacities of both unloaders are as follows

| | | |
|----------|---|---------------------|
| 9 M3 | - | Copper Concentrates |
| 13.25 M3 | - | Rock Phosphate |
| 15.50 M3 | - | Coal |

The out reach of FIGEE & TRF crane from centre of Belt Conveyor is 35.0 Meter & 38.0 m. respectively.

The unloader feeds a belt conveyor running parallel to Jetty and is transferred to a 450mm diameter pipe conveyor (3.2 KM long) to the sampling tower in plant.

The Jetty duty officer will be in charge of cargo handling operation. Bulldozers will be used to collect residual cargo in hold, which will be eventually grabbed out.

Masters and chief officers are advised to be guided by guidelines and recommendations for handling of bulk cargoes and review with Jetty duty officer as appropriate. Cargo discharge plan and sequence based on optimum stress shall be handed over to Jetty duty officer by the vessel.

The Jetty is also equipped with portable Ammonia handling facility (loading arm) Size 10 inches 300 ANSI to feed 16" ANSI 300 lagged line of about 3km. a Phosphoric Acid manifold Size of 8" feeding 10 inches stainless steel line.

Pre-cooling of Ammonia line & loading arm to -25 degrees has been arranged by service provider / handler (Sanjana Cryogenic Storages Ltd.)

The Jetty is also capable of handling Phosphoric acid (P205) by way of S.S. 300mm line and flexible hoses (rubber and PVC) suitably bonded by 8" flanges for electrical neutrality. Rate of discharge is approximately 700t/hr. Pigging arrangement and procedure is in place for draining of line (content approximately 250cbm). Vessels should maintain a discharge pressure of about 6 kg. at the ship's manifold.

The Jetty is provided with fire main and adequate fire fighting facility including self-contained breathing apparatus.

Fresh water line for potable water is laid on the Jetty & for chemical shower.

| | | |
|---------------|------------|------------------|
| Hours of Work | 1st Shift | 0600 - 1400 hrs. |
| | Meal Break | 1030 - 1100 hrs. |
| | 2nd Shift | 1400 - 2200 hrs. |
| | Meal Break | 1830 - 1900 hrs. |
| | 3rd Shift | 2200 - 0600 hrs. |
| | Meal Break | 0200 - 0230 hrs. |

INTERRUPTION OF UNLOADING

Cargo work will be suspended in case of rain, strong winds (> 30 knots) and or in any other emergencies whereby vessel is unable to remain alongside berth.

DAMAGE

Any damage to vessel while discharging cargo is to be informed to Jetty duty officer immediately or at least during the shift in writing. An independent surveyor will be appointed to ascertain the cause and extent of damage and approximate cost of repairs. Normal wear and tear is to be accepted and vessel is to be suitable for grab discharge of bulk cargo from holds. Attention is drawn to CONDITIONS of use of Port annexed to this manual.

MEASUREMENT OF CARGO

Conveyor belt has facility to weigh Copper cargo dynamically by electronic measuring device. Rock Phosphate & Coal are normally handled as per joint draft survey.

BALLASTING

No restriction on ballasting and quantities taken subject to guidelines in force being followed for prevention of local marine environment. However, Master should ensure that vessel remains at all times in position and draft does not exceed 13 Meters. No tanks to be overflowed on Jetty during ballasting. No dirty ballast to be discharged in port. IMO recommendation should be followed when exchanging ballast in Indian waters.

WASHING HOLDS

Discharge of hold washing within Indian Territorial Waters is prohibited.

No bilges will be discharged at the Jetty. Limited reception facility is available for waste oil & garbage disposal.

AVAILABILITY OF SERVICES

No bunkers and bonded stores are available. Provision can be obtained from nearest town Bharuch, which is 45 km from the berth. Fresh water is available on Jetty. Master needing fresh water should inform Jetty duty officer well in advance so that necessary arrangements can be made.

SHIP ACCESS REQUIREMENTS AND SECURITY ARRANGEMENTS

Shore will provide safe means to Jetty i.e. gangway.

The Terminal is complying with ISPS Code and security arrangements are made accordingly. The terminal will have Security guards round the clock. Terminal is not open to the public. There is no problem of stowaways. All vessels calling on this terminal should ensure that no unauthorised persons board the vessels and the gangway is to be manned at all times.

SHIP / SHORE COMMUNICATION PROCEDURES

Terminal will be keeping continuous watch on V.H.F. channel 16 & 68. Jetty will respond in case of any matters relating to cargo, routine administrative communication or emergencies. In case of emergencies even pilot will respond immediately and alert the tugs. Terminal has R/T facility to continuously watch on 8104 KHz. during 08.00 hrs to 20.00 hrs LT.

ENVIRONMENTAL PROTECTION

Engine room bilges should not be pumped out while the vessel is at the Terminal. No oil should be pumped out at all. No garbage should be thrown over board. Heavy fines will be levied on the vessel in accordance with Indian statutes for non-compliance. It is the responsibility of any person to report oil spill immediately to the nearest authority by fastest means available. Approved Oil Contingency plan is in operation at this port in accordance with national and regional requirements.

RECEPTION FACILITY

Limited facility of 20 cbm is available for receipt of waste oil by prior arrangement with shipping agent. Domestic waste separated in distinctive plastic bags (green and black) for biodegradable and non-biodegradable respectively may be landed ashore for disposal by prior arrangement with shipping agent.

CONSERVANCY

DHIL has vested powers in GM (Marine Operations) to take all reasonable care (vide QMS Manual) to open the terminal for Birla Copper Plant cargo and other interested end users subject to limitations in force from time to time. DHIL has an obligation to have regard to efficiency, economy and safety of operators with respect to services and facilities provided.

DHIL, like all employers have duty to conduct their operators in such a way as to ensure, so far as reasonable, that persons not in their employment who may be affected thereby are not exposed to risks to their health and safety

Provision of Health & Safety at Work Act and recommendations of Risk Analysis & Study commissioned by DHIL bind all DHIL employees.

DHIL periodically arranges to survey Jetty area and approaches (vide Survey Chart no. ESPL/579/02/DHILBATHY/01 of Nov. 2002.

The overall conservancy of the Port of Dahej is controlled by Port Officer, Dahej, Gujarat Maritime Board.

EMERGENCY PROCEDURE

1. Response co ordination

- a. General Manager (Marine Operations) will be overall in charge (Designated person) of handling an emergency. His contact numbers will be available at Radio Control Room and he is in possession of walkie-talkie with VHF channels.
- b. The radio room shall be command and control room for all emergencies.
- c. All the ships berthed shall maintain continuous liaison with radio room / supervisor / standby tug through duty officer who would have walkie-talkie with VHF channel all the times.
- d. The Radio room / supervisor / tug / ship shall maintain continuous watch on VHF channel 68 / 6.

Radio room and tug should maintain dual channel watch i.e. the common emergency channel - CH 16 and the channel 68/ 6.

- e. In case of emergency on the ship, immediate alert shall be issued to all the above, who should take emergency actions.
- f. In addition emergency alarm, installed in terminal, shall be sounded.
- g. The unloader operators shall be alerted by this alarm who should immediately suspend operations, lift gantry to clear any obstacles and evacuate.
- h. The mooring crew upon hearing the alarm shall be at their mooring stations for emergency casting off. Supervisor shall have loud hailer / walkie-talkie system by which he will instruct mooring crew, ship, gantry crane operator and if needed fire fighting crew.
- i. Decision to cast off the ship to be taken by the Chief Coordinator i.e. GM (Marine Operations), DI-1 IL. The tug master shall give all possible assistance in this matter.
- j. A fire fighting team of the terminal operating crew and other shift personnel is formed. They have basic fire fighting training at one of the approved marine institutions. They are familiar with fire fighting equipment at the terminal and they are carrying out weekly fire drills. This is recorded and constant checks are made to keep the equipment in readiness.

2. Emergencies anticipated at the terminal are as follows:

a. Rough weather emergency

In case of storm approaching the area, prior warning will be received. Therefore, the radio officer of DHIL must receive daily weather forecast, which must be sighted by the GM (Marine Operations), or his designated officer.

- ii. It is strongly suggested that specific weather report prepared by IMD for ONGC should be obtained on payment of fees as this is more accurate than general report and will give better service.

Storm signals are displayed from mast erected on top of DHIL control room building as per annexed chart of signals.

Note: When storm signals display precautionary or warning signals, vessel should be alerted to keep in readiness to suspend operations at short notice, cast off to proceed to anchorage / sea. Tugs to remain tied alongside the ship in full readiness to pull of the ship.

3. Emergency breaking of mooring

In case of breaking of moorings, vessel may not remain in its designated position, thereby the unloader may be endangered by ship mast or superstructure etc. The Jetty duty officer and unloader operator must maintain constant vigil and sound alarm, in case such breaking of mooring is noticed.

Same Procedure would apply in case there is swell alongside during monsoons and vessel is surging alongside.

b. Ship staff shall be notified on arrival, in writing with specific mooring instruction in view of large tidal range and strong currents (vide Ship Shore Check List and notice at the gangway).

4. *Mooring Instructions:*

a. Mooring team of terminal is to operate ship moorings. The team comprising of various marine crew of the plant, or taken on hire at short notice, shall be placed on board, should the GM (Marine Operations) feel that ship's staff is incapable, indifferent and would not ensure continuous attendance of moorings. No chance should be taken on this account.

This requirement may be included in ship's charter party terms and for benefit of the owners of the ship. When such difficulty exists in the opinion of the GM (Marine Operations), he will notify master of the vessel and ship will be off-hired.

b. Emergency tow wires, forward and aft. As used of tankers, should be made compulsory for bulk carriers as well, on seaside of the ship to enable immediate connection of tugs, in case of emergency.

c. Upon completion of mooring, GM (Marine Operations) / designated officer or DHIL should personally inspect mooring completion, and give green signal in writing to Jetty duty officer.

5. Tanker / Chemical Carrier

- a. Full follow up of international tanker terminal safety guide is applicable.
- b. Cheekson arm connections for loading/ unloading of liquid cargo shall be made only after proper mooring and approval by the GM (Marine Operations) / designated officer of DH IL.
- c. Extra mooring precautions shall be taken in view of semirigid connection of the cheekson and joints.

6. On board fire

- a. In case of fire on board, it is expected that the ship would activate the fire fighting system and tackle the same. Nonetheless, following steps shall be taken on terminal.

Suspend unloader operations immediately.

- ii. Disconnect cheekson arm and stop discharging.
- iii. Clear away the terminal of unnecessary personnel.
- iv. Alarm shall be sounded and terminal fire fighting team to be at station to support ships efforts.

Every effort shall be made to pull out the ship from Jetty (with knowledge and if possible concurrence of the ship) by casting off moorings / cutting moorings and by tugs towing the ship to anchorage, clear off the terminal.

NOTE: It is suggested that the crew to be fully conversant with this difficult emergency procedure. Prompt and accurate action is required by tugs to pull off in order to safeguard and save the terminal, at the same time ship shall be shifted and anchored at safe distance.

7. Fire on the terminal

- a. In case of fire on the terminal, the alarm shall be sounded and terminal fire fighting staff to fight fire.
- b. Ships shall be pulled off in similar manner as stated above.
- c. The plant fire fighting equipment i.e. fire tenders etc shall be pressed in service.
- d. All the electric power, except for emergency lighting, to be switched off to avoid electrocution.

Medical emergencies

in case of any serious accident at the terminal or on the ship, Radio room shall call ambulance and doctor to immediately shift the affected person/s to plant hospital. Note: It is of paramount importance that in such situations, watch keeping radio operators shall be alert and quick in passing on messages. The radio room has adequate number of telephones.

Similarly the terminal supervisor and tug crew shall be vigilant at all times to prevent personal injury. All incidents and near misses are to be reported to GM (Marine Operations).

a. Marine pollution

It is important to ensure that ship alongside understand MARPOL 1978 requirements. They must take all oil pollution precautions not to pump out bilges or spill oil while at the terminal. Oil spill reporting as per international regulations is in force at DHIL terminal (Dahej). Standard Pollution report format is available with Marine Officer and Radio control room.

It shall be ship's responsibility to ensure not to pump out Engine room bilges or spill oil while at the terminal or else the Master and /or owners shall be liable for the fines and penalties levied by the local authorities. Detention of the ship on this account, or any other account when the local authorities detain ship shall not be terminal's responsibility.

10. Man Overboard

Jetty has dedicated life buoys with lines for immediate use. On noticing Man Over Board throw nearest life buoy to him / her and raise alarm. Alert Pilot launch / tug to get ready for emergency manoeuvre.

WELFARE MATTERS

- a. STD, ISD, PCO facility is available in the Birla Copper residential colony,
- b. Public transport is available from Dahej / Lakhigam village to Bharuch between 0430 hrs to 1730 hrs.
- c. No taxis are available locally however shipping agent can book taxis from Bharuch town in advance.
- d. Primary health care and medical facilities can be arranged from Birla Copper complex.
- e. There is no immigration facility available, no shore leave is allowed.

DEPARTURE PROCEDURES

On completion of cargo unloading / loading operations vessel will be immediately pulled off the berth and kept at anchorage if another vessel is waiting for berthing and tide is favourable. In other cases vessels will be permitted to stay on berth till the time sailing formalities and documentation is complete.

In normal cases terminal will provide departure documentation such as Statement of Facts, Cargo quantity survey report, port clearance etc. within 2 hours of completion of cargo operations.

JURISDICTION

High court of Judicature @ Ahmedabad, Gujarat only.

Copy of applicable bylaws / tariff can be obtained from GM (Marine Operations) @ Dahej

ANNEX 1
DHIL Dahej, Gujarat PORT RULES

1. Authority: Indian Ports Act 1908 (No. 15) sections 5, 6 & 21; GMB Act 1981; and Gujarat Government Notification G/PF/8/96/IPA-1385-9964(4)-GH Dated 19/12/1996.

2. Definitions:

- ACT means the Indian Ports Act 1908 as amended.
- GMB means Gujarat Maritime board.
- MOST means Ministry of Surface Transport, Government of India.
- IMO means International Maritime Organization a UN agency).
- ICS means International Chamber of Shipping in London.
- ISGOT means International Tanker Terminals Guide.
- Navigable channel means charted waters free of obstruction and adequate depth above chart datum for safe navigation.
- Hydrographic Survey means survey undertaken by the Chief Hydrographer to the Government of India, Dehradun.
- Bathymetric survey means survey of underwater soundings substantiated by satellite pictures of the navigable channel as obtained from Central Water & Power Research Station, CWPRS Pune.
- HAZOP study means one conducted by Tata Risk Management Services & Howe India P. Ltd. in 1997 & 2000 respectively.
- SOLAS means International Convention on Safety of Life at Sea.
- Port officer means conservator of the port limits applicable as appointed by the GMB.
- Port limits - as shown on chart annexed to this manual.
- General Manager means qualified person appointed by the owners of the port and one who is responsible for implementing the requirements of Navigational Safety in Ports Committee (NSPC) of the MOST, New Delhi.

3 Application:

These Regulations apply to the ships entering, berthing and exiting from the DHIL terminal at all times covered by quality manual and are subject to international, national and local Rules with respect to carriage and handling of cargoes with due regard to the hazards associated with the said cargoes.

These Regulations shall also apply to vessels at anchor within the port limits and to vessels waiting for other than entry to the terminal except due to act of God.

These Regulations require the pilot / private terminal official to check and assist the GMB / Port Officer with information pertaining to:

- Vessel details;
- Classification status of the vessel;
- Statutory certificates and their validity including annual endorsements;
- Certificate of fitness if applicable;
- Crew list and Safe Manning Certificates;
- Certificates of competency of Master and officers;
- International Safety Management certificates;

- Port State Control / Flag State Inspection report; and
- De-rating certificate.

Every vessel desirous of entering port limits shall communicate to General Manager / Terminal control with all available means at intervals not exceeding 48 hours and 24 hours prior to arrival. The communication shall include but not limited to the Estimated Time of Arrival, Vessel particulars including last port of call, health questions for free pratique as per International Code of Signals, cargo details, name of consignee and consignor and name of ship's local agent responsible for port dues, indemnity for damage / wreck removal and Government levy as applicable.

The said indemnity for wreck removal may be in the form of P&I cover. Central Government may issue Gazette notification appointing receiver of wrecks with powers conferred by Part XIII of Merchant Shipping Act 1958 as amended.

Vessels are subject to Vessel Traffic Service (or Vessel Traffic Management System) in operation from time to time. Vessels may also be subject to inspection from the authorities from Maritime Security point of view.

5.

Immobilization in port limits is strictly prohibited. Port is in tidal waters. At least 12 good mooring ropes are required for berthing and maintaining vessel alongside DHIL terminal.

6.

GMB licensed pilots are provided by O&M contractor.

Pilotage is compulsory within the port limits for entry and exit from the terminal. Vessels requiring pilot shall hoist flag "G" from its masthead.

Pilot station is located 1' west of Jetty marked on Indian Hydrographic Chart No. 2082

7.

Pilot on boarding shall exchange information pertaining to the vessel characteristics and hand over to the master a check list duly signed with passage plan and latest data of depths in the navigable channel / off Terminal.

Provided the vessel has communicated all the required information at least 48 hours in advance of ETA, the pilot may grant free pratique as appropriate.

8.

Master is always in command of his vessel and pilot is only advisor to help berth the vessel at the terminal. The pilot may also act as loading master to assist the master to discharge / load bulk cargo / liquid cargo / Ammonia quickly and safely.

9.

The vessel at the time of docking and undocking should be free of all obstructions and provided with suitable fenders and free of discharging scuppers.

10.

The vessel is responsible to provide safe access to the pilot when boarding and disembarking. The pilot ladder and accessories are to be as per annex to this manual.

The vessel is also responsible for providing safe access to terminal persons and port officials when alongside the terminal. The vessel should rig a duly approved gangway with suitable safety net and lights. The terminal should be requested for one in good time to avoid undue delay.

11.

The vessel may anchor in the port limits with prior permission of jetty control tower. Anchor position is to be communicated to the jetty control tower soon after anchoring and anchor position checked by proper anchor watch.

12.

Movement of vessels is to be controlled by the jetty control tower so as to avoid other traffic in the navigable channel. The vessels shall therefore maintain VHF watch on the assigned channels.

Two tugs of 40 tonne bollard pull and a pilot boat are available to assist vessels of 70,000 MT dwt. Port movement is governed by tides. Copy of tide tables applicable for the day can be obtained from the pilot.

13.

All concerned shall observe the following basic precaution and display clearly at the entrance to the vessel and terminal: NO SMOKING. NO NAKED LIGHTS. NO UNAUTHORISED PERSONS.

14.

All vessels and terminal operators shall be guided by storm signals details of which are annexed to this manual and keep clear of port and traffic when cautionary or port-closed signals are displayed from port control tower. At all other times approach the port limits with utmost caution with due regard to monsoon weather conditions likely to be encountered in mid summer and mid winter season.

Attention of all concerned is drawn to navigational warnings broadcast continuously in the region and advice given in weekly notices to mariners available free of charge from the offices of GMB.

15.

Every vessel and jetty control tower shall log weather every four hours and if need be more frequently so as to avoid impending storm conditions. For this purpose approved and certificated weather watch instruments shall be provided. These shall include but not limited to barometer, hygrometer, wind vane, & facility for continuous monitoring of their reading. Shipping movement may not take place in winds of 28 knots or more and significant wave height of 1.5m. Approach velocity to the berth has been fixed at approximately 4m/sec.

16.

Tankers when along side shall isolate wireless aerials as appropriate and ensure good bonding wire connection or insulating flange between the vessel and the jetty to avoid static electricity charge building as a source of ignition. The vessel and terminal shall display red light and red flag "B" where it can best be seen as a warning sign.

Cargo work shall only continue on General Manager approving appropriate ship / shore checklist.

Provisions contained in SOLAS Ch.VI and bulk carrier code should guide bulk carriers. General Manager or his deputy shall plan cargo operations in consultation with ship's Chief Officer to prevent undue stresses / damage.

17.

NO HOT work is permitted on any vessel when handling petroleum cargoes alongside. Terminal Manager in accordance with established procedure, which shall include information to emergency services and start and end times, may permit COLD WORK. Port officer may stop any unauthorized work taking place in the vicinity of such vessels / terminals.

18.

Every vessel and terminal operator shall provide anti marine pollution measures including contingency plan. Sufficient material for clean up should be available at the site of potential discharge. Exchange of ballast water or discharge of dirty water ballast is prohibited. All

vessels may be required to show logbook / oil record book to demonstrate compliance with international oil pollution measures.

19.

The port has limited facilities for receipt of residual oil, sludge or garbage presently. In exceptional circumstances the Port officer may permit local agent to arrange for additional on the basis of full cost recovery.

20.

It is mandatory for vessel and terminal to report any incident of oil pollution to Port Officer and the nearest GMB office by quickest means of communication and commence containment measures immediately. Dispersants if any should be of the approved type.

21.

Mercantile Marine Department or its authorized representative may carry out port state control inspection, detention and arrest of vessels as permitted by law.

22.

Port clearance may be granted by Superintendent of Customs on duty provided the vessel has valid statutory certificates, endorsements and clean bill from the port / terminal with respect to dues, levies, indemnity and cargo outturn.

23.

All vessels when approaching port limits and terminal shall keep clear of fishing grounds. They shall keep their movement known to jetty control tower to facilitate traffic management in the vicinity.

24.

Pilotage and other marine services when sub contracted by port / terminal shall be such as to generally comply with a recognized quality system.

25.

All terminal operators shall provide adequate life saving and fire fighting appliances at the site of cargo work and in accordance with applicable Rules and codes of practices. Where appropriate inerting and emergency shut down facilities shall also be provided and communication between ship and shore agreed as part of mandatory ship shore checklist procedure. Tugs where required shall be on stand by for use in emergency near tow lines suspended by a vessel working cargo at terminal.

26.

Personal injury or death shall be reported to local police and security staff in charge. Basic medical facilities are available at Birla Copper campus hospital.

Shore leave to crew is generally not permitted. Limited crew change facilities are available with prior approval of the port. Dahej is 50 km from nearest main railway station and 3 hours by road to Airport in Vadodra. Both serve New Delhi & Mumbai routes.

27.

Offences and penalties under these Regulations are subject to the provisions of Merchant Shipping Act, Indian Ports Act, GMB ACT and Factories Act as amended.

28.

Port charges / Tariff could be obtained from General Manager for ready reference.

GENERAL MANAGER

DIRECTOR

MSC CIRCULAR

LOADING AND UNLOADING OF BULK CARGO

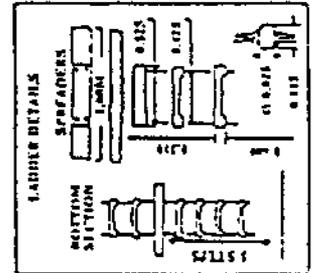
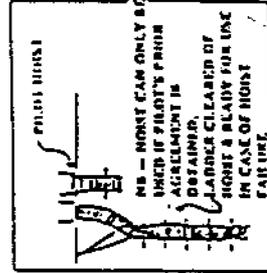
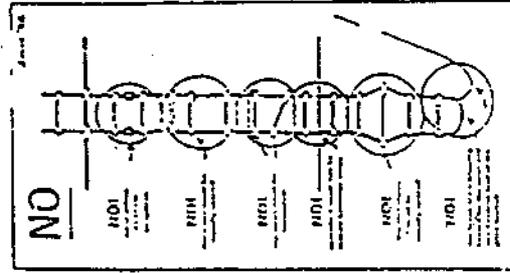
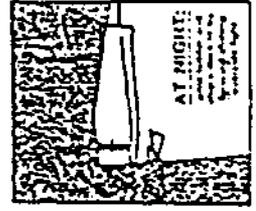
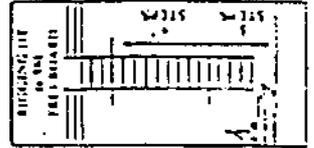
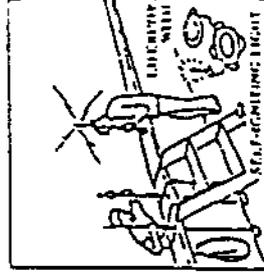
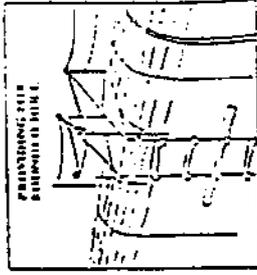
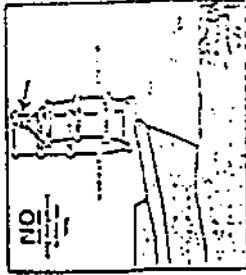
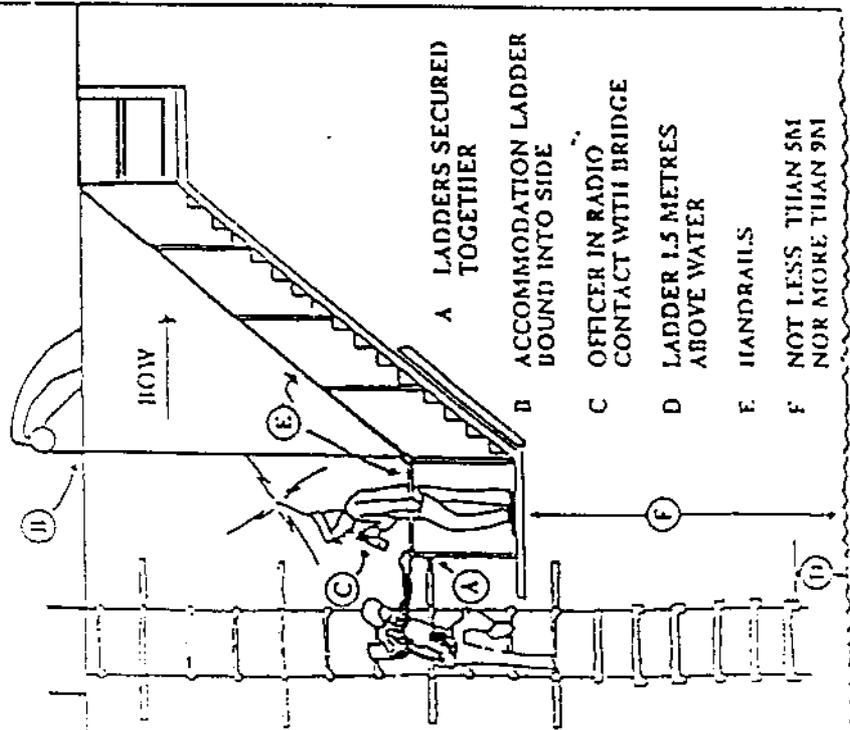
SHIP / SHORE SAFETY CHECKLIST

1. The Maritime Safety Committee, at its sixty-fifth session (9 to 17 May 1995), agreed that, in the interest of promoting safe practices aboard bulk carriers, Administration should encourage the use of a suitable ship / shore safety checklist in order to ensure adequate co-operation between ship and terminal. And, ensure proper planning prior to the commencement of cargo operations to minimise effects of excessive hull stresses. In this regard, the Committee considered the model ship / shore safety checklist, annexed to be relevant and approved its circulation.
2. Member Governments are urged to bring the aforementioned checklist to the attention of parties concerned, in particular ship masters, port authorities and terminal operators.
3. This circular supercedes MSC/Circ. 665.
4. See also IMO Ship/ Shore checklist applicable to bulk carriers / tankers as appropriate. Cargo operations at DHIL, jetty will only commence when the said ship / shore checklist is duly filed by Jetty duty officer and receipt acknowledged by Marine Managers.

Dahej Bulk Import Terminal Pilot Boarding Requirements

(Complies with Chapter V, SOLAS Convention, Reg.10)

PILOT LADDER RIGGED WITH ACCOMMODATION LADDER



Dahej Harbour Infrastructure Ltd. Dahej, Gujarat, India

Form 04/Rev01/01/2003 (in duplicate)

DATA SHEET (to accompany Ship /Shore Safety checklist

S.No.....
Date.....

The Master
MV.....

| S. No. | Name of international certificate | Dt. Issued | Dt. Expiry | Remarks |
|--------|------------------------------------|------------|------------|---------|
| 1. | Safety Construction Certificate | | | |
| 2. | Annual endorsement | | | |
| 3. | Load line Certificate | | | |
| 4. | Annual endorsement | | | |
| 5. | Tonnage Certificate | | | |
| 6. | Safe Equipment Certificate | | | |
| 7. | Annual endorsement | | | |
| 8. | Safe Radio Certificate (GMDSS | | | |
| 9. | Annual Endorsement | | | |
| 10. | IOPP Certificate | | | |
| 11. | Annual endorsement | | | |
| 12. | Certificate of Fitness | | | |
| 13. | Applicable approved manual | | | |
| 14. | ISM DOC | | | |
| 15. | ISM SMC | | | |
| 16. | ISM Intermediate / Annual Survey | | | |
| 17. | Safe Manning Certificate | | | |
| 18. | P&I Club with wreck removal clause | | | |
| 19. | | | | |
| 20. | | | | |

Date & place of last port state control inspection.....
 Status of pending critical equipment defect / condition of Class.....
 Number of good mooring ropes Fwd.....Aft.....

Ship stamp

MASTER

Note: This data may be filled and given to the pilot on berthing or filed by the company / agent prior to berthing in Terminal Manager's office of DHIL. GM (MO) may not allow the vessel to sail without rectifying shortcoming, if any, noted above as per guidelines issued by the Government of India.

BULK CARRIERS / TANKERS

S.No...
Date.....

The Master
MV.....
Company / Agent.....
Port.....
Dear Sir,

Responsibility for the safe conduct of operations whilst your ship is at DHIL jetty rests jointly with you, as master of the ship, and with the responsible terminal representative.

We wish, therefore, before operations start, to seek your full co-operation and understanding on the safety requirements set out in the applicable Ship / Shore Safety check list, rules and recommendations (Current editions of SOLAS, MARPOL, IBC & IGC codes of practice, Government of India MS Rules / Notices, ISGOT / OCIMF terminal guidelines & Code of safe working practices) widely accepted by shipping industries.

In particular ship and terminal has important duties with respect to safe loading & discharging of bulk carriers & tankers with due regard to potential for damage due to hull stresses and mechanical damage to ships' structure. Our staff will be guided by your cargo plan and your periodical review thereof.

We expect you, and all under your command to adhere strictly to these requirements throughout your stay alongside DHIL jetty and we, for our part, will ensure that our personnel do likewise, and co-operate fully with you in the mutual interest of safe and efficient operations.

Terminal manual copy given to you describes salient features of this jetty and especially nature of operations required due to large tidal range prevailing in this port.

Before the start of operations, and from time to time thereafter, for our mutual safety, jetty supervisor on duty will make routine inspection of your ship to ensure that the questions of Ship / Shore Safety checklist can be answered in the affirmative (in writing where required). Where corrective action is needed we will not agree to operations commencing or, should they have been started, we will require them to be stopped. Such delays are normally to ships' account.

Similarly, if you consider safety is endangered by any action on the part of our staff or by any equipment under our control you should demand immediate cessation of operations. E.g. Use of ESD by your duty officer.

THERE CAN BE NO COMPROMISE WITH SAFETY OR POLLUTION

Please acknowledge receipt of this letter, Terminal Manual & Ship /Shore Safety checklists & oblige.

Signed by Jetty duty officer /DHIL representative
Name.....
Contact point Tel No VHF Ch

Signed by Master
Name.....

Received by Marine Manager / GM (MO)
Date..... Time.....

Completion of Ship / Shore Safety checklists & data sheet is a pre requisite for operations at DHIL.

DHIL letterhead

The Master
MV.....

Dear Sir,

Sub: INDEMNITY LETTER & CONDITIONS OF USE OF DHIL JE77T

In accordance with Indian Ports Act and applicable Rules made there under from time to time, use of facilities and services provided by DHIL are subject to the following conditions:

1. DHIL nor its servants, agents suppliers or contractors will be responsible for any loss, damage or delay howsoever caused, arising in consequence of any service & or assistance / advice / instructions given in respect of the vessel, whether by way of pilotage, berthing facilities, the provision of navigational aids or facilities including buoys or otherwise. The Master of the vessel shall remain solely responsible on behalf of Owner / Charterer for the safe navigation of his vessel and vessel's safety when lying alongside this berth.
2. While DHIL endeavours that the berth, premises, facilities, gear / equipment tugs / craft made available or deployed for vessel's operations are safe & at all times suitable for intended use, no guarantee of such safety or suitability is given by DHIL and it shall not be responsible for any loss, damage, or delay of any kind that may be sustained by or occur to the vessel or her Owner / Charterer or her cargo or any part there of, whether such cargo is being handled at the time of loss or not by whosoever or howsoever caused.
3. If, in this connection or by reason of the use by the vessel of the berth, premises, facilities, gear & equipment tugs / craft belonging to DHIL or its servants, agents, suppliers, contractors in part or in full causes or deemed to have caused damage or delay to the vessel whatsoever irrespective of negligence of DHIL or its servants, agents, suppliers or contractors and irrespective of contributory negligence of the vessel, crew, Owner / Charterer, in any such causes, the vessel and the Owner / Charterer shall indemnify DHIL against any or all such damage / delay and against all and any claims, expenses arising there from. Furthermore, the vessel shall indemnify DHIL from any loss, damage delay whatsoever arising from similar incidents howsoever caused by a third party or to a third party by the vessel, her crew or her Owner / Charterer or their agents and servants.
4. Notwithstanding anything contained above, the vessel is responsible for it's wreck, grounding or otherwise becomes in the opinion of DHIL an obstruction in part or not or danger to the port, or the approaches there to and the Owner / Charterer fails to remove such obstruction within stipulated time given by DHIL, it shall be empowered to take requisite steps it may deem necessary to remove said obstruction or danger and any expenses arising there from shall be recoverable from the vessel, OWNER / CHARTERER / AGENT at the time of the accident / incident causing such obstruction or danger.
5. The Master or his authorized deputy shall be responsible for managing ship operations as per applicable Rules and recommendations with respect to prevention of pollution and in particular marine pollution due to bilges, ballast water, ship waste, garbage and the like.
6. The Master or his deputy shall at all times be ready to remove the vessel when reasonably ordered to do so by DHIL in the interest of safety or efficient use of the port & jetty.
7. These conditions shall be construed according to the prevailing laws of India and jurisdiction of High Court in Ahmedabad, Gujarat.

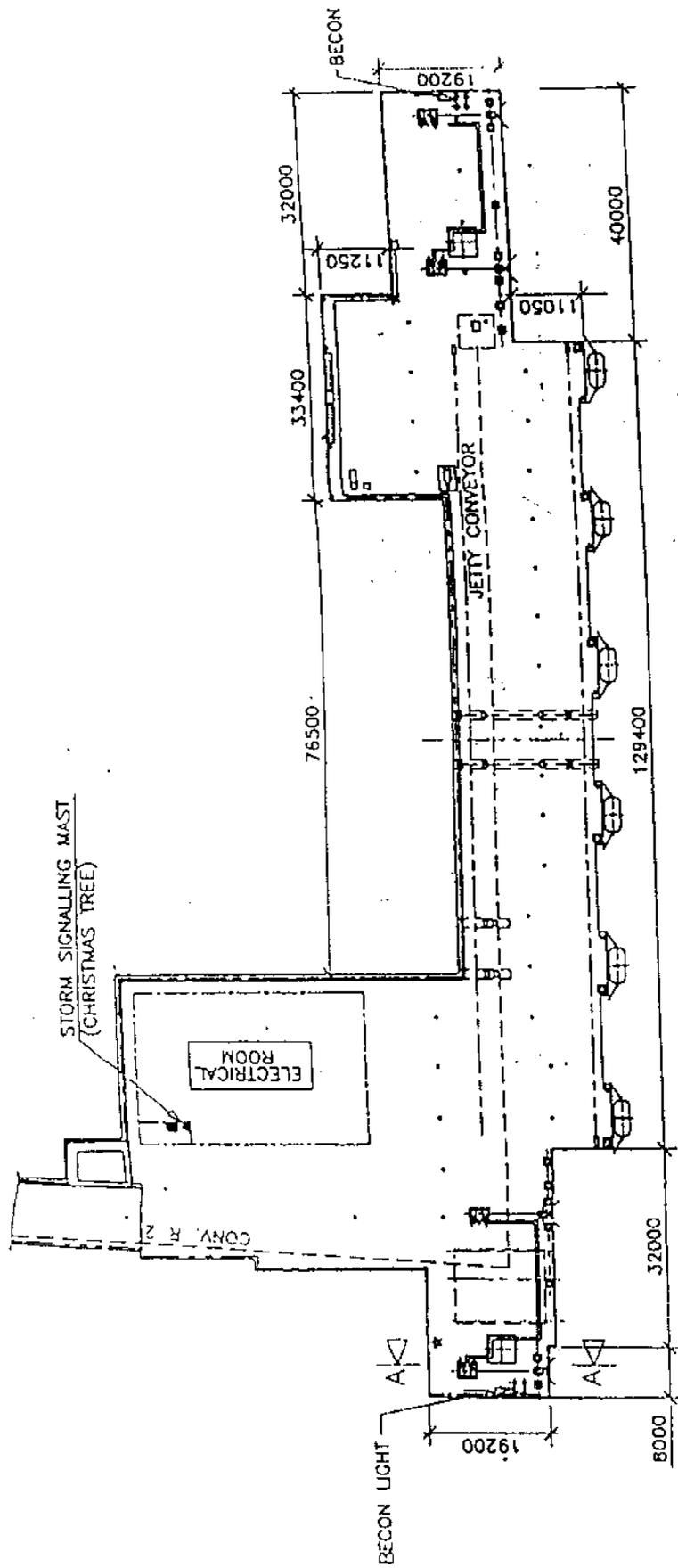
Thanking you,
Yours faithfully,

Received and accepted

General Manager, (Marine Ops)

DHIL

Master, M. V. _____



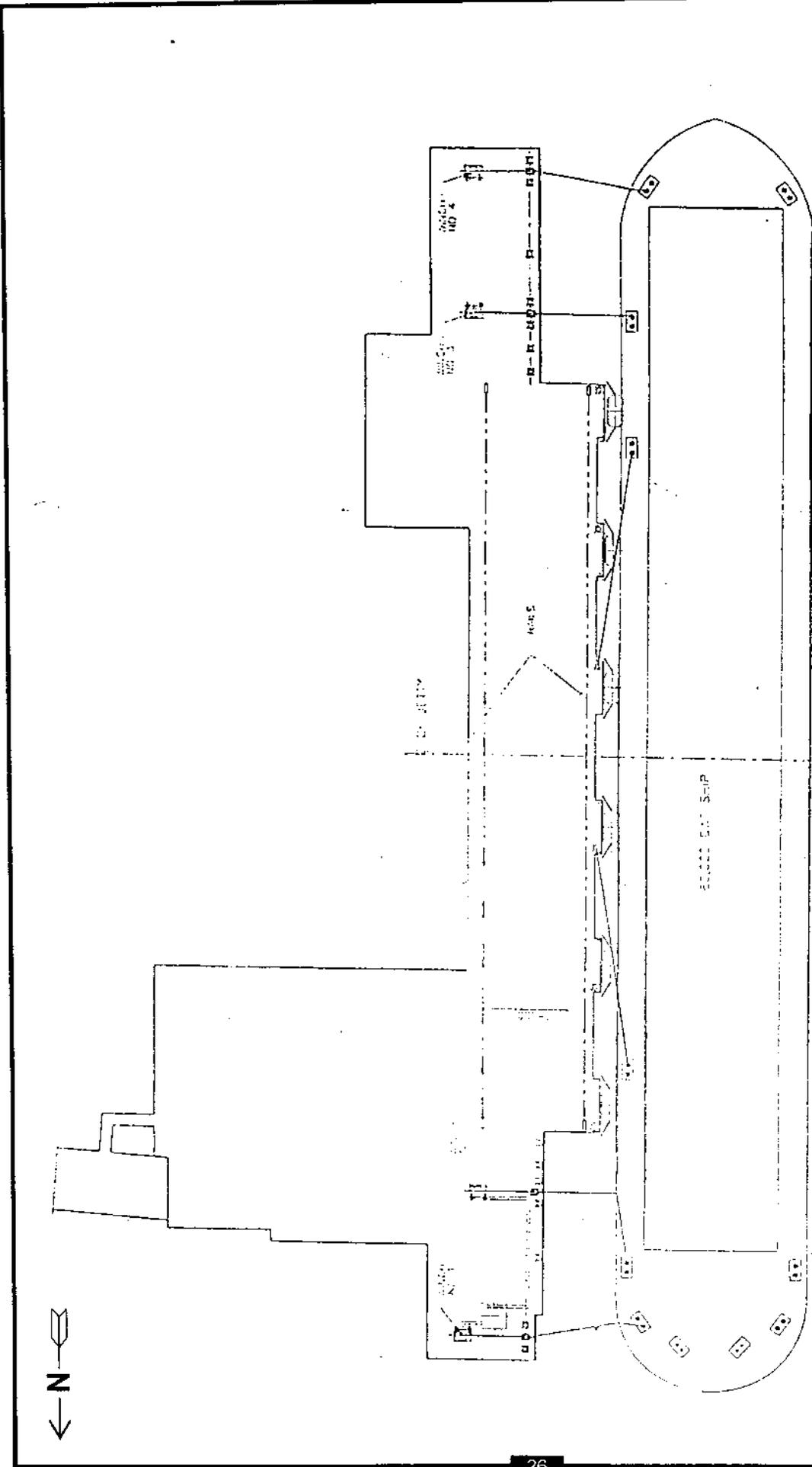
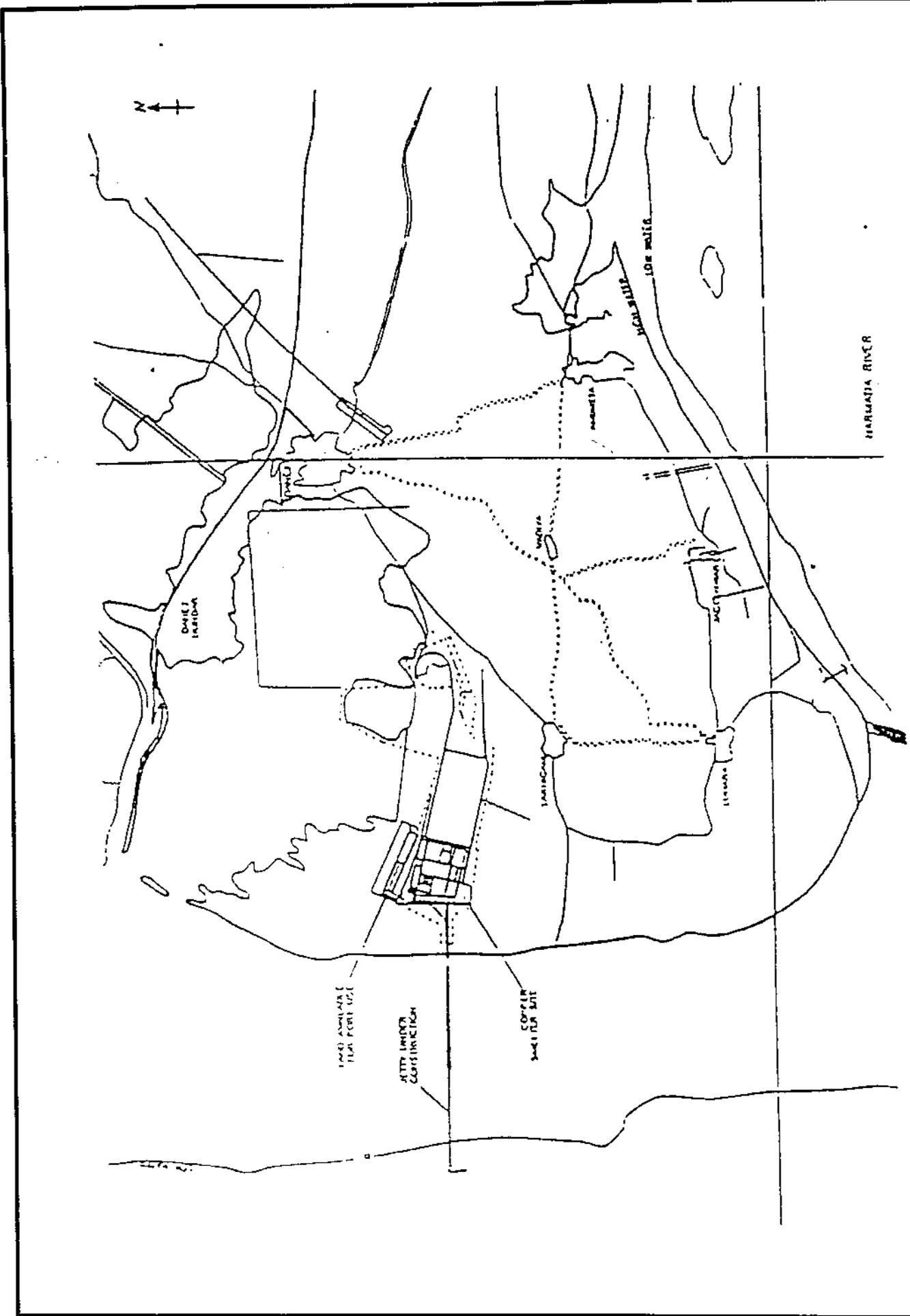


Fig.2- 60,000 DWT SHIP PLACED CENTRALLY



N ↑

HARGRAVE RIVER

McGILLIP
100' WIDE

ROAD

DAVIS
ROAD

ROAD

ROAD

ROAD

ROAD

LAND AVAILABLE
FOR PORT USE

UTILITY
CONSTRUCTION

COOPER
300' x 150' SITE

| S. NO. | NAME OF SIGNAL | SIGN OF SIGNAL | | MEANING OF SIGNAL |
|--------|--------------------------|---|---|---|
| | | DAY | NIGHT | |
| I | CAUTIONARY |  |  | THERE IS A REGION OF SQUALLY WEATHER IN WHICH STORM MAY BE FORMING |
| II | WARNING |  |  | A STORM HAS FORMED |
| III | CAUTIONARY |  |  | THE PORT IS THREATENED BY SQUALLY WEATHER |
| IV | WARNING |  |  | THE PORT IS THREATENED BY A STORM BUT IT DOES NOT APPEAR THAT THE DANGER IS AS YET SUFFICIENTLY GREAT TO JUSTIFY EXTREME MEASURES OF PRECAUTION |
| V | DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF SLIGHT OR MODERATE INTENSITY THAT IS EXPECTED TO CROSS THE COAST TO THE SOUTH OF THE PORT |
| VI | DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF SLIGHT OR MODERATE INTENSITY THAT IS EXPECTED TO CROSS THE COAST TO THE NORTH OF THE PORT |
| VII | DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF A GREAT INTENSITY THAT IS EXPECTED TO CROSS OVER OR NEAR THE PORT |
| VIII | GREAT DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF A GREAT INTENSITY THAT IS EXPECTED TO CROSS THE COAST TO THE SOUTH OF THE PORT |
| IX | GREAT DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF A GREAT INTENSITY THAT IS EXPECTED TO CROSS THE COAST TO THE NORTH OF THE PORT |
| X | GREAT DANGER |  |  | THE PORT WILL EXPERIENCE SEVERE WEATHER FROM A STORM OF A GREAT INTENSITY THAT IS EXPECTED TO CROSS OVER OR NEAR THE PORT |
| XI | FALLURE OF COMMUNICATION |  |  | COMMUNICATION WITH METEOROLOGICAL WARNING CENTRE HAS BROKEN DOWN AND THE LOCAL OFFICER CONSIDERS THAT THERE IS DANGER OF BAD WEATHER |

LEGEND

RED

WHITE

INDO GULF FERTILISERS & CHEMICALS CORPN. LTD.

MARINE & MATERIAL HANDLING FACILITIES AT DAHEJ
CONTRACT C-10 NAVIGATION AIDS
STORM SIGNALLING MAST

| | | | |
|-------------|--|---|-----------|
| DESIGNED BY |  | HOWE (INDIA) PVT. LTD. | AS SHOWN |
| DATE | | CONSULTING ENGINEERS - PROJECT MANAGERS | JUNE 1992 |
| APPROVED | REF. NO. | DWG. NO. | REV. |
| | 1050 | C-1000 | |