

Port of Ras Tanura Juaymah Crude & LPG Terminals

Including Contents Page & Annex



Juaymah Crude (SPM) Terminal

RULES REGULATIONS AND GENERAL INFORMATION

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Juaymah Crude (SPM) Terminal

RULES REGULATIONS AND GENERAL INFORMATION

1 General

1.1 Location of Terminal

The Juaymah Crude Terminal loading facilities are located approximately 18 miles N-NW of the Ras Tanura Terminal and 7 miles offshore. See location charts in the Annex to this section.

These facilities consist of an oil metering and manifold platform, a terminal control platform and six single point mooring berths.

1.2 Description of Terminal

The Juaymah Crude Terminal is a Saudi Aramco crude oil and bunker fuel loading facility designed for loading and topping off deep draft tankers. The terminal consists of the following facilities:

1.2.1 An Oil Platform

An oil platform located in 15.24 meters of water. The platform is well lit in addition to one fixed white light on each corner of the platform with a range of visibility of approximately 5 miles.

1.2.2 The Control Platform

The control platform is located 46 meters N of the oil platform and connected to it by a walkway bridge. This houses communications, testing laboratory, offices, control system and meteorological equipment. This platform is marked by a fixed red aircraft warning light.

1.2.3 Single Point Mooring Buoys

Six Single Point Mooring buoys have been established between 1 and 4 miles to the NE of these platforms. Crude oil and bunkers are received at each buoy from the oil platform through one bunker and two crude oil submarine pipelines, which are connected to the buoy by flexible submarine hoses.

1.2.4 Loading Hoses

Each buoy is fitted with two 20"/24" diameter floating crude loading hose strings and one 12" diameter floating bunker loading hose string. The crude string tail hoses are fitted with 16" or 20" Class 150 ANSI flanges for connection to the ship's manifold. The bunker string tail hoses are fitted with 12" class 150 ANSI flanges.

The length of each hose string is approximately 335 m.

1.2.4.1 SPM Marker Buoys

When an SPM is removed and taken ashore for maintenance, a marker buoy may be installed to indicate the position of the underwater pipeline and anchor chains.

1.3 Marine Terminal Assistance Fees

The Owners, Operators and Charterers of any vessel calling at Ras Tanura Port shall be liable and shall reimburse Saudi Aramco promptly and in full for all applicable Ras Tanura Marine Terminal Assistance Fees.

2 Traffic Movements and Maneuvering

2.1 Vessel Traffic Management System (VTMS)

A mandatory Vessel Traffic Management System (VTMS) is in operation to improve navigational safety for all vessels within the Port of Ras Tanura.

The Ras Tanura VTMS Operators Will Never, Under Any Circumstances, Assume Control Of, Or Responsibility for Vessels Navigating in The Area. The Manager, Port Operations May Issue Special Instructions in Exceptional Circumstances.

2.1.1 The Service Provided to Masters

The VTS Operator will provide the following information service for the Masters:

- Information on channel and port conditions, congestion, weather, tides, navigational aids, etc.
- Information on the movement of other vessels, dangerous maneuvering situations, vessels violating port rules and regulations, berthing prospects and anchoring conditions.
- Advice on port rules regarding the movement of deep draft vessels and the priorities of vessel movements. It may be necessary for vessels arriving to reduce speed to permit safe passage for outgoing deep draft vessels.

2.1.2 Special Orders and Exceptional Circumstances

Whenever a potentially dangerous or hazardous situation exists within the Ports of Ras Tanura, the Manager, Port Operations or his Deputy may issue orders regarding same. Such orders will normally be relayed through the VTMS and will be preceded by the phrase "By Order of the Manager, Port Operations."

2.2 Traffic Rules

The following rules apply to all ships entering or leaving the Ports of Ras Tanura or Dammam by way of the Ras Tanura Channel. The separation zones and routes shown on the charts of the Ras Tanura Channel are approved by IMO. Violators of the routing recommendations will be reported to their Owners/Operators/ Agents and/or Charterers.

All limited speeds must be adhered to within Ras Tanura Port limits unless a controlled deviation is required for reasons of safety.

2.2.1 General

Vessels departing from North Holding Anchorage shall advise Ras Tanura Port Control on VHF, channel 10, of their intentions 30 minutes before weighing anchor. Vessels departing from Ras Tanura Inner Anchorage shall advise Ras Tanura Port Control on VHF, channel 13.

2.2.2 Crossing Channel Separation Zones

Vessels crossing the Ras Tanura Channels for any reason should do so only with the concurrence of and under the guidance of Ras Tanura Port Control. This includes, for example, entering the arrival channel from the Northern Holding Anchorage.

2.2.3 Ships Bound to And from the Port of Dammam

Ships bound to and from the Port of Dammam shall keep to the eastern part of the Tanker Anchorage and avoid the maneuvering areas extending from the anchorage to the Sea Islands and Piers.

Outbound ships from Dammam shall, when passing Dammam Channel Buoy No. D11, alert Ras Tanura Port Control on VHF channel 13 of their estimated time of arrival at the southern extremity of the Tanker Anchorage.

2.2.4 Ras Tanura Arrival Channel Rules, All Inbound ships:

- A. Navigating in The Departure Channel: Under No Circumstances Shall Inbound Vessels Navigate in The Departure Channel.
- B. Reporting Positions: When Passing the Entry Buoy Report to Ras Tanura Port Control on VHF Channel 10. When Passing The "A" Buoy, Report Again to Ras Tanura Port Control on VHF Channel 10, Who Will Then Advise to Shift VHF Channel To 13.
- C. Limited Speed: All ships using the Ras Tanura Port, Traffic Separation Scheme shall on passing the Ras Tanura, Approach Buoy or joining at any other point approved by Ras Tanura Port Control Center proceed at the following mandated speeds:
 - From Approach Buoy to Delta (D) Buoy: Not exceed a speed of 12 knots.
 - From Delta (D) Buoy to the South extremity of the Tanker Anchorage, all ships shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.
- D. Overtaking: Vessels Shall Not Overtake Other Vessels After Passing The "D" Buoy.
- E. Minimum Distance Between Vessels: Vessels Shall Maintain A Distance Of At least Two Miles from Vessels Proceeding in The Same Direction After Passing The "D" Buoy.
- F. Navigate with Caution: Vessels Shall Navigate with Caution and Give Way to Vessels Departing from the Berths and Anchorages.

2.2.5 Ras Tanura Departure Channel Rules, All Ships Using the Outbound Channel:

- A. Navigating in the Inbound Channel: Under No Circumstances Shall Outbound Vessels Navigate in The Arrival Channel.
- B. Overtaking: Vessels Shall Not Overtake Other Vessels Until After Passing The "B" Buoy.
- C. Minimum Distance Between Vessels: Vessels Shall Maintain A Distance Of At Least Two Miles from Vessels Proceeding in The Same Direction Until Both Vessels Have Passed Clear of the "B" Buoy.

- D. Limited Speed: All departing ships approved by Ras Tanura Port Control Center to use or join at any point the Ras Tanura Port, Traffic Separation Scheme shall proceed at the following mandated speeds:
- From the South extremity of the Tanker Anchorage to the entrance to the Departure Channel and until passing Foxtrot (F) Buoy shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.
 - From Foxtrot (F) Buoy to Approach Buoy: Speed not exceeding 12 knots
- E. Maximum Sailing Draft in The Departure Channel:
- Shall Not Exceed 21.0 Meters Draft.
 - Have an Under-Keel Clearance Of At Least 1.5 Meters.

2.2.6 Anchorages and vessel Maneuvering Areas:

Limited Speed: Vessels not proceeding within the Ras Tanura Traffic Separation scheme and maneuvering while proceeding to and departing from the following areas shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.

- The area between the South extremity of the Tanker Anchorage and the entrance to the Departure Channel ('H' and '20' buoys).
- North Holding Anchorage and within its boundaries
- Juaymah LPG Anchorage and within its boundaries
- Juaymah SPMs, 5.0-mile radius
- Juaymah NGL Pier, 5.0-mile radius

3 Entering the Terminal

3.1 Maximum Drafts

3.1.1 Minimum Keel Clearance

Tankers proceeding to or from the berths must at all times keep a minimum of 2.0m under keel clearance.

3.1.2 Maximum Arrival Draft - Normal Operations

Under normal operating conditions, the maximum arrival draft is 21.3 m.

3.1.3 Maximum Arrival Draft - Special Operations

A special operation, such as discharging cargo at Juaymah Crude Terminal, which requires tankers to arrive with drafts in excess of 21.3 m, requires special routing and other arrangements. In this case, the absolute maximum draft is 26 m. Such tankers:

- When arriving, shall proceed to the Main Channel by way of Ras Tanura Light Float and the Approach Buoy and transit the Arrival Channel to the Entry Buoy. After passing the Entry Buoy, the tanker shall leave the Arrival Channel and cross the Northern Holding Anchorage, passing well north of Fasht Gharibah and turn south toward the Juaymah Pilot Boarding Area leaving buoy J2 close to port. The Pilot will board the vessel after it passes J2 buoy provided a berth is assigned on arrival.
- Shall be upright and have no more than 1% sag.
- Shall, at no time, pass south of a line drawn due East from Juaymah Offshore Platform.

- Shall only enter the charted restricted area on a rising tide with sufficient time to complete the berthing operation before high water.

3.1.4 Tankers with Drafts Exceeding 25.0 Meters

Tankers with drafts of 25.0 m and above, whether arriving or departing, shall at no time pass more than 0.5 miles south of a line drawn through SPMs #31, #35 and #36.

3.2 Arrival Ballast Condition

For vessels proceeding from sea to the Juaymah SPM crude terminal, (via the RT Arrival Channel) the maximum permitted draft shall be 21.3 m. Masters of vessels arriving with a deep draft should navigate with caution in the vicinity of: 26° 50.5'N, 50° 10.5'E.

3.2.1 Maximum Trim

Due to the exposed location at the Juaymah berths, tankers should arrive with sufficient water ballast for safe handling, having due regard to the existing sea and weather conditions.

Unless otherwise instructed, vessels must arrive with the propellers immersed and the trim not exceeding 0.7% of LOA by the stern.

3.3 Vessels Arriving from Sea

Proceed from the Entry Buoy and to a position approximately 2 miles Northeast of Buoy "A." In accordance with advice from Ras Tanura Port Control, the vessel should then turn into the Juaymah Pilot Boarding Area to anchor or be berthed on arrival.

3.4 Vessels Arriving from the Northern Holding Anchorage

These vessels should enter the traffic separation scheme under advice of Ras Tanura Port Control on VHF Channels 10 and 16.

3.5 Vessels Arriving from the Ras Tanura Terminal

The vessel, when clear of Ras Tanura Terminal, should follow the departure channel towards the mid-channel marker Buoy "A" Caution Area and with advice from Ras Tanura Port Control turn into the Juaymah Pilot Boarding Area either to anchor or to be berthed on arrival.

3.6 VHF Communications

3.6.1 Underway

At all times when underway in the Arrival Channel and Pilot Boarding Area, vessels must maintain contact with Ras Tanura Port Control on VHF Channels 10 and 16.

Prior to arrival, vessels will be contacted by Ras Tanura Port Control, which will request certain updated and additional information for the use of the Pilot/Pilot Assistant who will berth the vessel.

3.6.2 At Anchor

A constant listening watch should be maintained on VHF Channels 10 and 16. Vessels will be called by Ras Tanura Port Control with berthing information and other instructions.

3.6.3 Under Pilotage and at Berth

The Pilot will carry a portable intrinsically safe multi-channel radio by means of which all communications regarding approach, mooring and cargo loading will be made. These radios are fitted with an emergency switch that activates an alarm at the Control Platform. He will also carry battery chargers for these radios during the vessel's stay in the Terminal. The vessel's VHF radio should be available (if possible in the cargo control room) as back up communications on Channel 13.

3.7 Anchors, Anchoring and Restricted Areas

3.7.1 Anchorage

The area west of "GRB" Beacon is used as a temporary holding anchorage for vessels awaiting arrival clearance or berthing if needed.

3.7.2 Restricted Area/Submerged Pipelines

1. Prohibited Entry

No vessel shall enter the prohibited area without a Pilot on board.

2. Use of Anchors Prohibited

Under no circumstances shall anchors be used in the vicinity of the berths due to the existence of numerous submerged pipelines.

4 Pilotage, Mooring Rules and Operations for SPM Berths

4.1 Pilot Boarding

The Pilot and Pilot Assistant will board the tanker at Juaymah Pilot Boarding Area west of Ghariba Beacon. The Master should provide an adequate lee for embarking the pilot team if they are to board from Pilot boat, or prepare his ship as requested by the helicopter dispatcher if they are to board by helicopter.

The Pilot and Pilot Assistant will advise the Master on all maneuvers and operations relative to berthing, connecting and disconnecting hoses and unberthing. Moreover, they will also provide all communications between ship and shore during cargo loading and be the Saudi Aramco Representative with respect to safety observations and other requirements.

4.2 Helicopter Operations

4.2.1 General

Helicopter operations in the Port of Ras Tanura are carried out according to the "International Chamber of Shipping (ICS) – Guide to Helicopter/Ship Operations". All vessels using the service should have a copy of this booklet and the safety checklist relevant to helicopter operations on board.

4.2.2 Description of Helicopters

The helicopters used to transport Saudi Aramco personnel and equipment to and from tankers in the Port of Ras Tanura are Agusta AW 139, which are twin engines and carry 12 passengers. They are fully equipped for night operations with the capability for either landing or winching operations. In addition to being fitted with radar and radios that

operate on aeronautical frequencies, they are fitted with International Marine VHF Channels 11, 12, 13, 14 and 16.

4.2.3 Ship Information

Vessels will be instructed to standby on VHF Channel 12 for instructions from the Ras Tanura Helicopter Base. The following information should be available:

- Vessel's Course and Speed.
- Relative Wind Speed and Direction.
- Location and Type of Helicopter Operating Area.

Due to the low profile of helicopters used by Saudi Aramco, a full landing area is necessary for a landing operation.

Prior to the helicopter's departure, Masters will be required to confirm that they are complying fully with the recommendations contained in the "ICS - GUIDE TO HELICOPTER/SHIP OPERATIONS." Contact will be made by the Helicopter Pilot with the vessel on VHF Channel 12 as soon as practical after takeoff from the Helicopter Base.

4.3 Preparations Prior to Berthing

Ships assigned to the SPM berths must comply with the OCIMF recommendations for equipment employed at single point moorings.

During the approach, while mooring/securing to the berth, the vessel's anchors **MUST** be secured by stoppers to prevent accidental dropping with subsequent damage to the subsea pipelines and equipment.

Line handling during mooring/unmooring shall be performed by the ship's staff under instructions of the Pilot/Pilot Assistant.

Both port and starboard cranes shall be rigged and ready to lift the hose connecting equipment basket from the launch from either side. A trolley should be available to transport this equipment about the vessel's deck.

The following vessel's equipment should be ready on the forecastle head.

- Large crow bar.
- Large intrinsically safe flashlight for night mooring.
- A messenger lines 24 to 28 mm diameter, 150 m in length.
- Winch drum or empty spool drum to heave onboard the mooring pick up rope.

Note: Where possible, the mooring line(s) should lead through a "Panama chock" in the center of the bow, rather than through a single port or starboard bow fairlead as this produces fewer tendencies to yaw.

Power should be available at the winches (mooring deck equipment) on the forecastle and to the cranes at the ship's manifold to ensure they are ready to lift the ancillary mooring and hose handling equipment. Manifold should be prepared for cargo operations.

The Pilot/Pilot Assistant will check that all equipment for mooring and hose connecting operations are on board the launch and in working order prior to departure. Items such as chain hoists, gaskets, wrenches, flange bolt sets, butterfly valve handles, ullaging equipment, sample bottles, etc., may be required and placed on board.

4.3.1 Preparing the Forecastle Head

Ship's staff will prepare the forecastle head for the mooring operation at the instruction of the Pilot/Pilot Assistant.

4.3.2 Preparing the Port Side Manifold

All Saudi Aramco SPM Terminals have been designed for use with vessel port side manifolds. The port crane must be currently certified, tested and ready for use. Two 16" or 20" flange connections to be fitted on cargo manifolds. If bunkers are required, one 12" flange on the after-manifold bunker connection required. To avoid delays, the vessel should have reducers ready at the port side manifold to adapt to these sizes.

Drip trays, absorbent material or sand and firefighting equipment should be in position.

Saudi Aramco normally supplies equipment, however the presence of the following suitable, certified for use and well-conditioned equipment will prevent delays in case of deficiency or malfunction.

- Chain Block.
- Spare spanners.
- Spare lifting strops.
- Spare bolts.

4.3.3 OCIMF Standard Manifold Arrangement

To secure the hoses to the vessel's manifold; the manifold arrangement must be as recommended in OCIMF publication "Recommendations for Oil and Chemical Tanker Manifolds and Associated Equipment".

4.3.4 Equipment Transfer

Saudi Aramco mooring and hose connecting equipment will be lifted aboard the tanker from the launch on either the port or starboard side by means of the ship's crane.

Normally, the transfer of equipment will be done once the ship is fully secured to SPM. If the ship requires cargo reducers, the transfer will be done as soon after the Pilot boards the vessel as possible. For this purpose, the hose handling crane shall be ready for immediate use and an adequate lee shall be provided.

To prevent injury to personnel and damage to the launch superstructure, the hoisting block must be secured and controlled by a handling line during the entire transfer operation.

4.4 Berthing - Sequence of Operations

4.4.1 Mooring/Line Boats

The launches and other terminal facilities are equipped with compatible VHF and UHF two-way radio equipment of adequate power.

4.4.2 Operational Limits

It has been generally agreed that mooring boats can operate in seas up to 6 ft in the hours of darkness, and 7 ft during the hours of daylight. These parameters are only guidelines. The decision to proceed with the operation should only be made after careful evaluation of the existing circumstances, and agreement with the mooring boats.

4.4.3 Optimum Approach Direction

Prior to making the final approach to the berth, it is important that the Master and the Pilot evaluate and agree, on all conditions and factors that will influence the mooring operation. These conditions and factors include: the tide, current, wind, swell and wave effect, and the direction in which the floating hose strings and hawsers are lying.

The optimum approach to the terminal is into the wind and sea. At times, this approach will not be possible, because of the current being at variance with the wind or sea conditions. Accordingly, it is incumbent upon the Master to exercise careful judgment when approaching the terminal, particularly during the hours of darkness and in poor visibility.

Particular attention must be given to the location of the floating hose string. Normally, the position of the floating hoses will be controlled by the currents, rather than by wind effect.

4.4.4 Approaching the Berth

When the optimum approach route has been selected, the tanker should proceed toward the terminal at a suitable speed, dependent upon the conditions at that time. Approximately 1,000 m from the berth, the vessel should have only sufficient way on for steerage.

The floating hose string should be on the port side. The tanker should make the final approach with the buoy on the port bow, rather than dead ahead. This permits the Pilot/Pilot Assistant on the bridge to observe the buoy at all times, and in the event of any misjudgment of the approach speed, there is no danger of overrunning the buoy.

It is extremely dangerous for small boats to lie in the path of large vessels, particularly when the larger vessel has a bulbous bow. Therefore, the ship's crew must carry the messenger line 50 ft aft (minimum) to one side of the ship before lowering the messenger line, thereby making it unnecessary for the boat to position itself dead ahead.

The tanker's approach speed must be reduced to a minimum, but sufficient to keep the ship's maneuverability.

4.4.5 Mooring Hawser Hookup

As the vessel approaches the berth, the floating hoses are towed away from the path of the approaching tanker.

When the vessel is approximately 300 to 460 m (1,000 to 1,500 ft) from the buoy, and still making way, the mooring boat will bring the port hawser pickup rope (80 mm diameter) and make it fast to the messenger. At the boat's signal, the pickup rope is heaved on deck.

Under No Circumstances Must Any Load Be Put on The Pickup Rope as This May Lead to The Failure of The Rope.

The tanker should be brought to a dead stop between 45 and 60 m (150 and 200 ft) from the buoy. At this point, the chafing chain is lifted into the bow chock and then to the bow chain stopper to be secured under the direction of the pilot. Ease back on the pickup rope until the weight is taken up.

Care must be taken to gradually transfer the load to the hawser, to avoid transient snatch loading that can result from a freely drifting tanker taking up hawser slack.

Repeat the operation for the starboard chain.

4.5 Connecting the Hoses

Connecting and disconnecting of cargo and bunker hoses is to be carried out by the ship's staff under supervision from the Pilot or appointed Pilot Assistant.

1. Lower the vessel crane hook clear of the ship side to the mooring boat.
2. The mooring boat crew will connect the hook to the designated hose.
3. Heave up the hose and retrieve the snubbing chain as directed by the Pilot Assistant.
4. Secure the snubbing chains as directed
5. Lower the hose and check for alignment of the hose flange with the vessels designated manifold flange.
6. Lower the hose onto the drip tray and restrict hose movement. Remove the hose blank flange.
7. Lift the hose and connect it to the manifold. Never use a wire strop or chain around the cargo or bunker hose.
8. All additional hoses should be connected using the repeated procedure and connected in the same way. It is important to use all of the bolt holes and a new gasket for every connection.
9. After all hoses are connected, cargo hoses must be supported in the way of the vessel's side rail by means of nylon belly bands hooked up to ship's crane. Be advised that the cargo hoses are partially resting on the saddle rail and most weight supported by the crane.

4.6 Use of Tug/Engine at Berth

Immediately after securing both chains, a tug will be placed on a towline at the stern of the vessel, using a vessel's line of suitable length and strength. The line is to be kept taut at all times.

Vessels that are only able to run their engines astern for short periods should maintain them in a state of readiness at short notice and use them as required to maintain position off the SPM. At such times, the Pilot should direct the operation from the forecastle with a vessel's officer and with the bridge manned by the Master.

4.7 Bow Watchman

At all times when at berth, there shall be an experienced crewmember on duty at the bow of the vessel. He shall be issued with a means of immediate communication with the Deck Officer on duty.

He shall observe the configuration of the hoses and mooring hawsers, and the proximity of the SPM and hoses to the tanker. He shall be alert to oil leaks or spills, unattached oil slicks in the vicinity and deteriorating weather conditions. He shall immediately report any abnormal event or deteriorating weather to the Deck Officer on duty.

See "SPM Hose Configurations Diagram" in the Annex to this section.

4.8 Manifold Watchman

At all times, when at berth and when cargo hoses are connected, there shall be a watchman on duty at the manifold. He shall observe the configuration of the hoses and the manifold connections. He shall be alert to oil leaks or spills, stress or chafing on the hoses or ancillary equipment and deteriorating weather conditions. He shall report any abnormality to the Deck Officer on duty.

4.9 The Deck Officer on Duty

The Deck Officer shall immediately report any abnormal events, deteriorating weather or other situations coming to his attention to the Pilot or Pilot Assistant on duty.

4.10 Gangways

The gangway is to be rigged and ready on the starboard side of the vessel, maintained at deck level.

4.11 Boarding Vessels at Berth

Small craft are not allowed in the vicinity of the vessel and no one is permitted to board or leave a vessel while cargo operations are in progress.

Should it become urgent for personnel to board or leave a vessel for any reason during the cargo operation, the Pilot must be contacted to request permission to shut down the cargo operation while the small craft is alongside.

4.12 Care of Berth Equipment

In bad weather, maintenance work is extremely difficult and involves possible danger to personnel. For this reason, vessels are requested to give as much assistance as possible by taking proper care of the mooring and hose equipment.

Hose/hawser maintenance is expensive. If Saudi Aramco judges that a vessel has misused any hose or hawser, the vessel will be liable for the expenditure incurred in making repairs.

4.13 Disconnecting the Hoses

On completion of loading cargo or bunkers, manifold valves must NOT be closed until the Pilot/Pilot Assistant directs. This is important for line clearing.

1. **Connect the forward hose chain to the crane hook, take the weight and disconnect the flange.**
2. **Replace the blank flange using all the bolts and a new gasket. Tighten the bolts to avoid uneven tension on the flange.**
3. **Lower hose to deck and secure.**
4. **Repeat with after hose and wait until back filling of the hoses is complete.**
5. **Bunker hose should be disconnected and securely blanked as soon as bunkering is completed and secured on deck until cargo loading is completed. It should be lowered into the water during back filling of the cargo hoses.**

6. When back filling is completed, secure the crane hook to the lifting hook of the after hose and raise the hose until the weight is taken off the snubbing chain.
7. Release the snubbing chain.
8. Lower the hose end into the water and trip the hook to release and guide hose end to mooring boat using appropriate small rope.
9. Repeat for the forward hose.

Return all Saudi Aramco tools and equipment to the steel basket, stow it in a seaman like manner, and prepare for lowering to the mooring boat, on either the port or starboard side, dependent on weather conditions.

4.14 Unmooring Procedure

1. Take the weight of the chain and hawser on the pickup rope using the windlass.
2. Disconnect chafing chain from the bow chain stopper.
3. Slowly slack the pickup rope until the support buoy is in the water and taking all of the weight of the chain.
4. Pay out the pickup line either to the mooring boat or as the ship clears the berth.

5 Berths Information

The specific gravity of seawater at Juaymah Crude Terminal is approximately 1.032.

Note: More information about berth information and diagrams of CALM/SALM type SPM buoys are in Annex III.

Loading Rates

Maximum crude loading rate is 130,000 barrels per hour and maximum bunker loading rate is 5,000 barrels per hour. Minimum topping-off rate is 25,000 barrels per hour.

Ballast and Slop Reception

None available.

Crude Oils Available:

- Arabian Light crude.
- Arabian Extra Light crude.
- Arabian Medium crude.
- Arabian Heavy crude.

Bunker Oil Available:

- A960 fuel oil (as bunkers).

5.1 Procedures at Berth

5.1.1 Loading Operations

The loading operation will be controlled by the ships' officers; however, radio communications with the Control Platform will be conducted by the Pilot or Pilot Assistant.

Under no circumstance is the flow to the vessel to be stopped by the vessel while switching tanks, etc. Need for emergency shutdown of loading aboard the vessel must be communicated by radio as mentioned above.

5.2 VHF Communications Failure

In the event of failure of radio communication systems, the vessel will sound five long blasts on the vessel's whistle followed by one, two, three, four, five and six short blasts for a vessel at Berth 31, 32, 33, 34, 35 or 36, respectively. Loading operations will be stopped and will not be resumed until communications have been restored.

6 Completion and Departure

6.1 Cargo Calculations and Release

The Cargo Officer should supply the Pilot with the ship's cargo loaded figures in U.S. (i.e., Gross) Barrels. The Pilot will not accept the figures until they are presented in writing on the Saudi Aramco ullage report form.

The pilot will transmit the figures to Saudi Aramco by radio or email to:

RTSHIPPINGACCOUNTINGGROUP@aramco.com

Or alternatively to

SNRHPT@aramco.com (+966 13 673 1152, +966 13 673 8787).

Results of ship/shore comparison take time and Masters are urged to prioritize the cargo calculations and completion of the ullage report form to avoid delay.

If the vessel is released, the Pilot will leave after unmooring is completed and the ship is clear of the berth. If the ship/shore difference is large and the vessel is not released, the Pilot will survey the cargo according to Saudi Aramco inspection procedures and report his findings to Saudi Aramco Terminal Planners.

Refer also to "COMMON RULES AND INFORMATION," Section 11.3 "CARGO CALCULATIONS AND RELEASE."

6.2 Departure

Upon completion of unmooring, the vessel will make a lee for the mooring and hose connecting equipment to be discharged onto the launch, on either port or starboard side.

The Pilot/Pilot Assistant will normally leave by helicopter.

A separate departure channel has been provided for all vessels using the Juaymah facilities. The vessel will proceed via the departure channel between Beacon J1 and Buoy J2, and then toward the Exit Buoy JE. The vessel should then set an easterly course north of Buoy JD to the Juaymah Light Float.

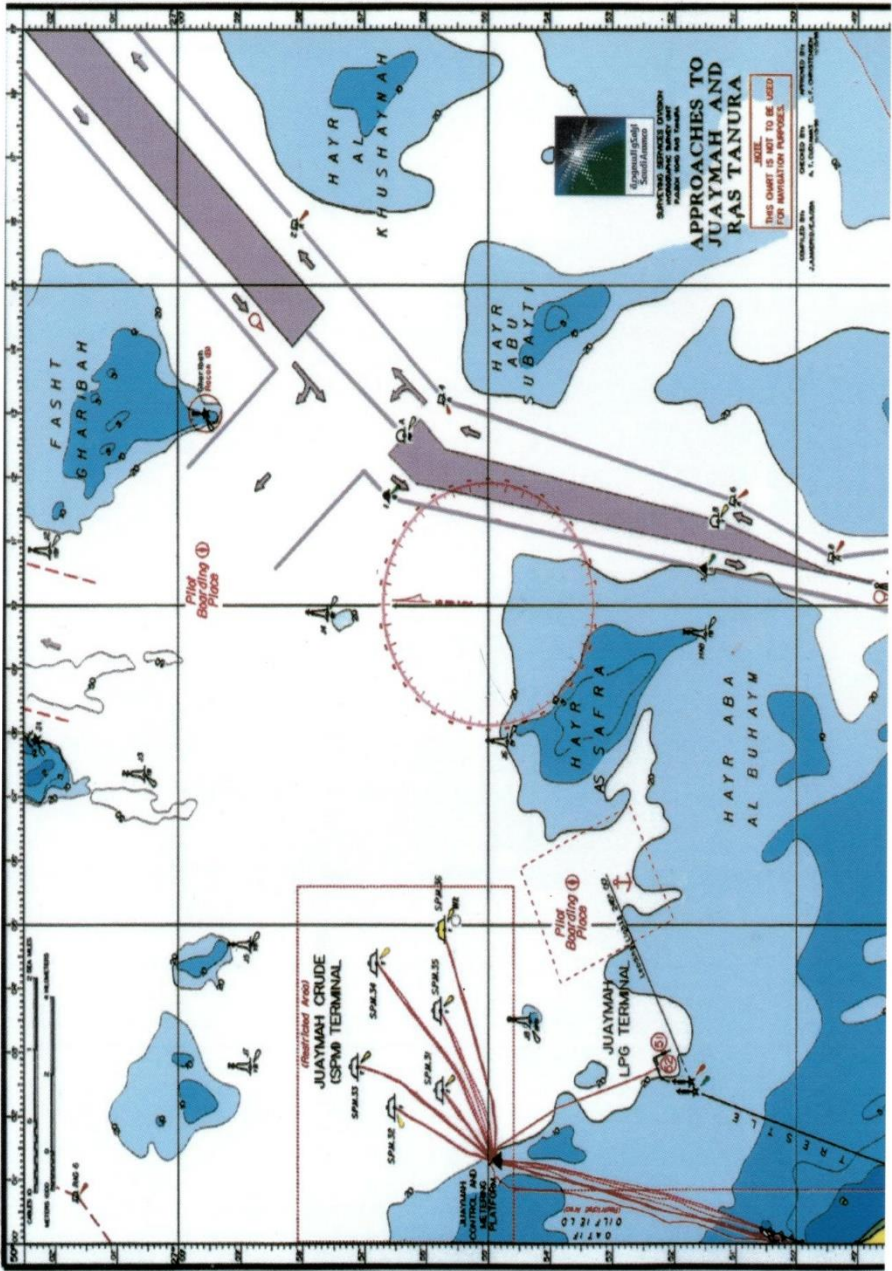
7 Annex

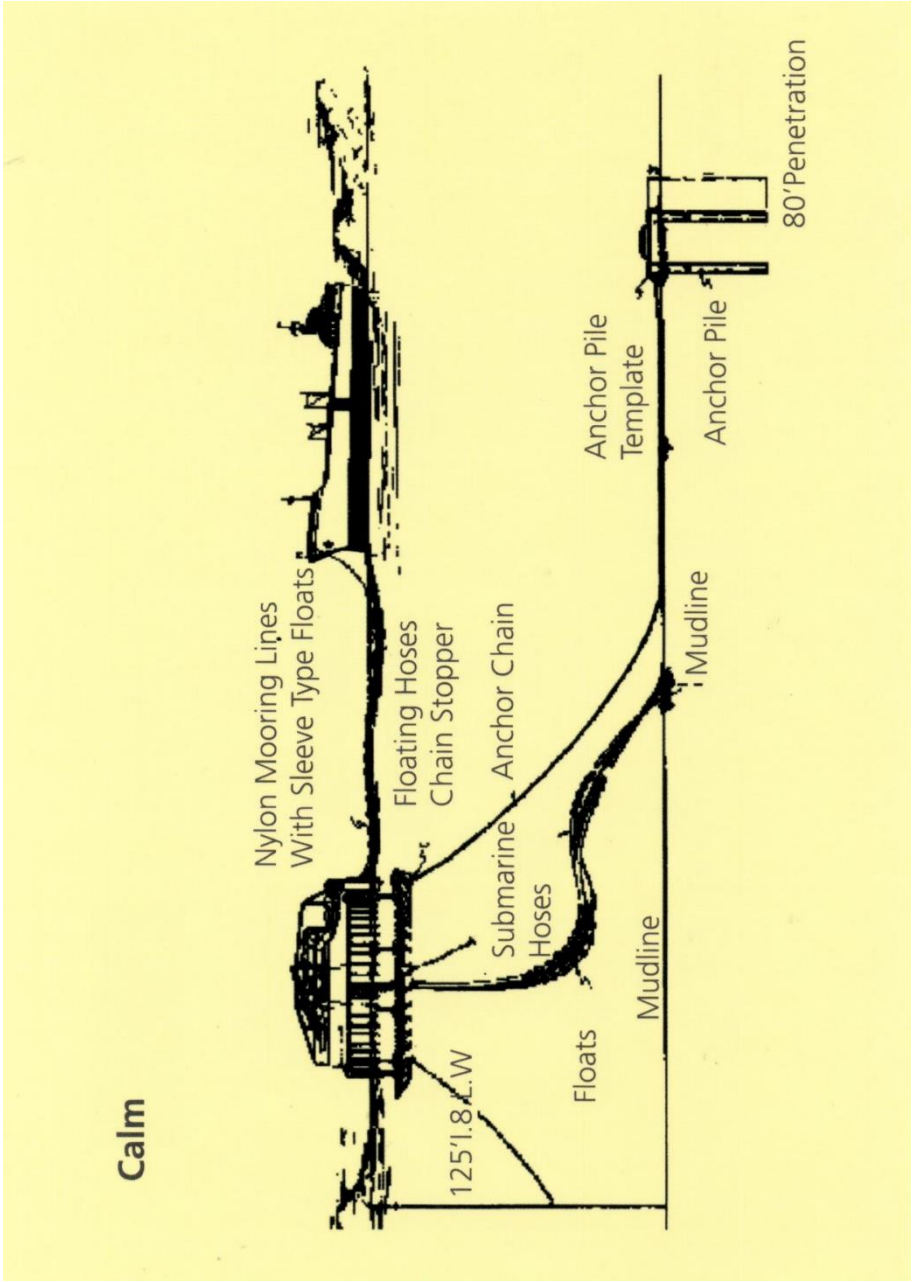
Location Charts

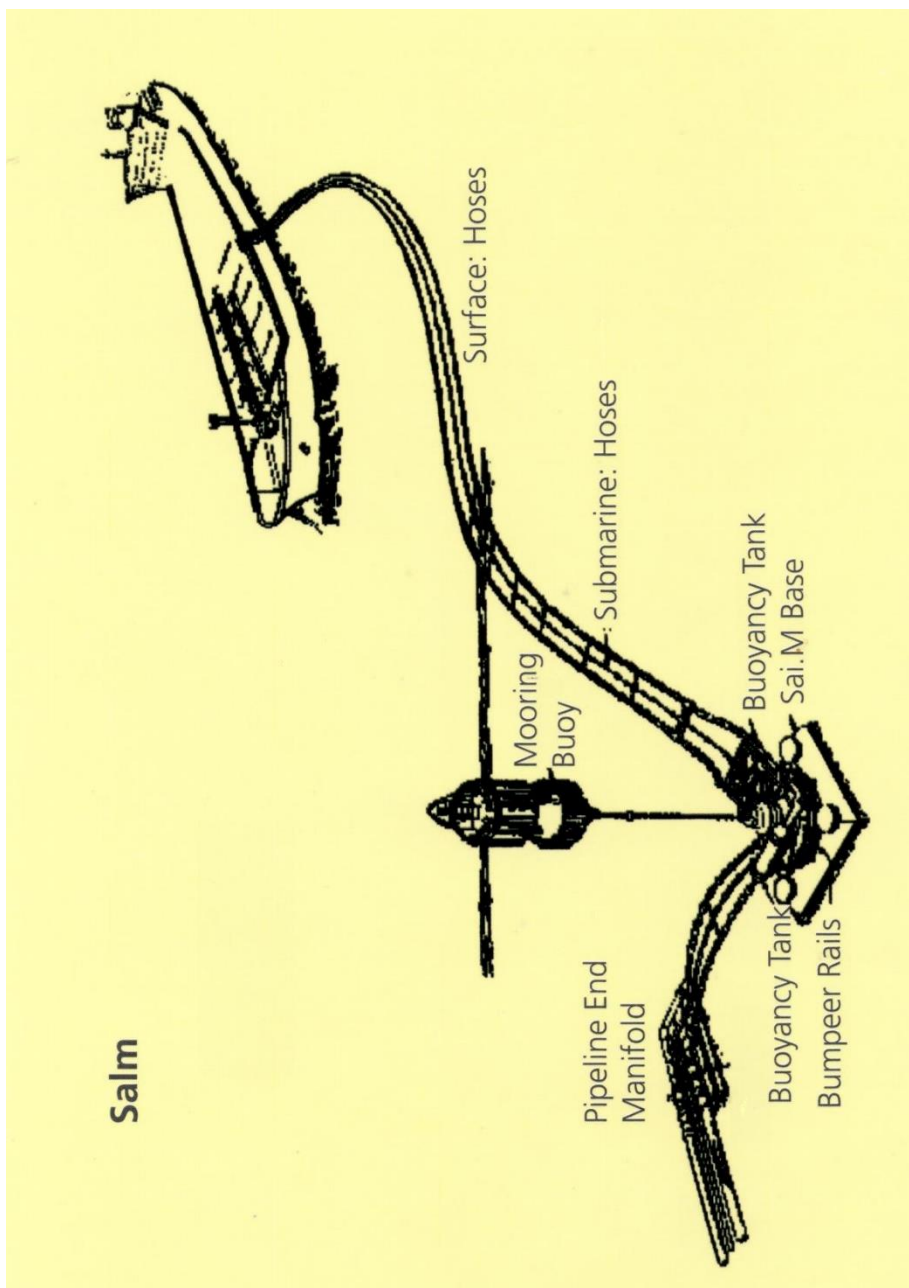
- Juaymah Terminal Area

Diagrams

- Calm Configuration
- Salm Configuration
- SPM Hose Configurations





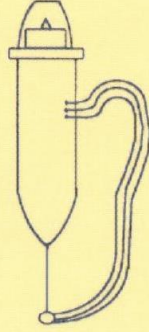


SPM Hose Configurations

Salm Type Buoys
SPM's 34,35

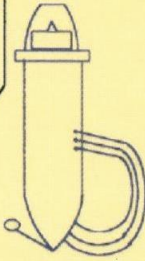
Correct Configuration

Calm Type Buoys
SPM's 31,32,33,36



Two or Three Floats
Showing on Surface

Incorrect Configuration



Ship overridng buoy
Possible buoy and
hose Damage

Ship overridng buoy
Possible buoy and
hose Damage- Go Astern



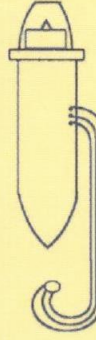
Seabed Swivel
not turning
call for assistance



Ship overridng buoy
Excessive Hose Bending
Possible Buoy Damage
Go Green



Ship Overridng Buoy
Excessive Bending in
Hoses possible buoy
damage - go astern



Buoy Turntable
Not Rotating
Call for Assistance

Juaymah LPG Terminal

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Juaymah LPG Terminal

RULES REGULATIONS AND GENERAL INFORMATION

1 General

1.1 Location of Terminal

The Juaymah LPG Terminal consists of a two-berth pier at the end of a 10 km trestle.

1.2 Description of Terminal

The Juaymah LPG Terminal is a Saudi Aramco operated facility, designed to load Refrigerated Liquefied Petroleum Gas (RLPG) aboard LPG carriers ranging in size from 25,000 to 200,000 DWT.

A tower crane is located in the center of the loading platform. A helicopter landing platform and two small flares are located near the seaward end of the trestle. Note: For more information with regard to RLPG handling refer to GASRUL section.

1.3 Marine Terminal Assistance Fees

The Owners, Operators and Charterers of any vessel calling at Ras Tanura Port shall be liable and shall reimburse Saudi Aramco promptly and in full for all applicable Ras Tanura Marine Terminal Assistance Fees.

2 VHF Communications

2.1 While Underway/at Anchor

Vessels should maintain a constant listening watch - on VHF Channels 10 and 16, for information and instructions, from any of the following sources at Ras Tanura Port Control and/or Saudi Aramco Terminal Planners - when underway in the following areas:

- In the Arrival Channel north of Buoy "A."
- Juaymah Pilot Boarding Area.
- Juaymah SPM Area.
- LPG Anchorage.

2.2 Under Pilotage

The Harbor Pilots carry portable, intrinsically safe radios for contact with tugs, which operate on Saudi Aramco dedicated mooring frequencies. In addition, the ship's main VHF should be on Channel 13 as back-up communication.

2.3 At Berth

The Terminal will supply a portable intrinsically safe radio to the vessel. This radio operates on a UHF frequency, dedicated to each berth, by means of which constant communication can be maintained during loading.

3 Traffic Movements and Maneuvering

3.1 Vessel Traffic Management System (VTMS)

A mandatory Vessel Traffic Management System (VTMS) is in operation to improve navigational safety for all vessels within the Port of Ras Tanura.

The Ras Tanura VTMS Operators Will Never, Under Any Circumstances, Assume Control Of, Or Responsibility for Vessels Navigating in The Area. The Manager, Port Operations May Issue Special Instructions in Exceptional Circumstances.

3.1.1 The Service Provided to Masters

The VTS Operator will provide the following information service for the Masters:

Information on channel and port conditions, congestion, weather, tides, navigational aids, etc.

Information on the movement of other vessels, dangerous maneuvering situations, vessels violating port rules and regulations, berthing prospects and anchoring conditions.

Advice on port rules regarding the movement of deep draft vessels and the priorities of vessel movements. It may be necessary for vessels arriving to reduce speed to permit safe passage for outgoing deep draft vessels.

3.1.2 Special Orders and Exceptional Circumstances

Whenever a potentially dangerous or hazardous situation exists within the Ports of Ras Tanura, the Manager, Port Operations or his Deputy may issue orders regarding same. Such orders will normally be relayed through the VTMS and will be preceded by the phrase "By Order of the Manager, Port Operations."

3.2 Traffic Rules

The following rules apply to all ships entering or leaving the Ports of Ras Tanura or Dammam by way of the Ras Tanura Channel. The separation zones and routes shown on the charts of the Ras Tanura Channel are approved by IMO. Violators of the routing recommendations will be reported to their Owners/Operators/ Agents and/or Charterers.

All limited speeds must be adhered to within Ras Tanura Port limits unless a controlled deviation is required for reasons of safety.

3.2.1 General

Vessels departing from North Holding Anchorage shall advise Ras Tanura Port Control on VHF, channel 10, of their intentions 30 minutes before weighing anchor. Vessels

departing from Ras Tanura Inner Anchorage shall advise Ras Tanura Port Control on VHF, channel 13.

Ships maneuvering in the area between the south extremity of the Ras Tanura Tanker Anchorage and the entrance to the "Departure Channel" (Buoy "H") shall limit their speed to a minimum safe maneuvering speed.

3.2.2 Crossing Channel Separation Zones

Vessels crossing the Ras Tanura Channels for any reason should do so only with the concurrence of and under the guidance of Ras Tanura Port Control. This includes, for example, entering the arrival channel from the Northern Holding Anchorage.

3.2.3 Ships Bound to And from the Port of Dammam

Ships bound to and from the Port of Dammam shall keep to the eastern part of the Tanker Anchorage and avoid the maneuvering areas extending from the anchorage to the Sea Islands and Piers.

Outbound ships from Dammam shall, when passing Dammam Channel Buoy No. D11, alert Ras Tanura Port Control on VHF channel 13 of their estimated time of arrival at the southern extremity of the Tanker Anchorage.

3.2.4 Ras Tanura Arrival Channel Rules All inbound ships:

Navigating in The Departure Channel: Under No Circumstances Shall Inbound Vessels Navigate in The Departure Channel.

Reporting Positions: When Passing the Entry Buoy Report to Ras Tanura Port Control on VHF Channel 10. When Passing The "A" Buoy, Report Again to Ras Tanura Port Control on VHF Channel 10, Who Will Then Advise to Shift VHF Channel To 13.

Limited Speed: All ships using the Ras Tanura Port, Traffic Separation Scheme shall on passing the Ras Tanura, Approach Buoy or joining at any other point approved by Ras Tanura Port Control Center proceed at the following mandated speeds:

From Approach Buoy to Delta (D) Buoy: Not exceed a speed of 12 knots.

From Delta (D) Buoy to the South extremity of the Tanker Anchorage, all ships shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.

Overtaking: Vessels Shall Not Overtake Other Vessels After Passing The "D" Buoy.

Minimum Distance Between Vessels: Vessels Shall Maintain A Distance Of At least Two Miles from Vessels Proceeding in The Same Direction After Passing The "D" Buoy.

Navigate with Caution: Vessels Shall Navigate with Caution and Give Way to Vessels Departing from the Berths and Anchorages.

3.2.5 Ras Tanura Departure Channel Rules All Ships Using the Outbound Channel:

Navigating in the Inbound Channel: Under No Circumstances Shall Outbound Vessels Navigate in The Arrival Channel.

Overtaking: Vessels Shall Not Overtake Other Vessels Until After Passing The "B" Buoy.

Minimum Distance Between Vessels: Vessels Shall Maintain A Distance Of At Least Two Miles from Vessels Proceeding in The Same Direction Until Both Vessels Have Passed Clear of the “B” Buoy.

Limited Speed: All departing ships approved by Ras Tanura Port Control Center to use or join at any point the Ras Tanura Port, Traffic Separation Scheme shall proceed at the following mandated speeds:

From the South extremity of the Tanker Anchorage to the entrance to the Departure Channel and until passing Foxtrot (F) Buoy shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.

From Foxtrot (F) Buoy to Approach Buoy: Speed not exceeding 12 knots

Maximum Sailing Draft in The Departure Channel:

Shall Not Exceed 21.0 Meters Draft.

Have an Under-Keel Clearance Of At Least 1.5 Meters.

3.2.6 Anchorages and vessel Maneuvering Areas:

Limited Speed: Vessels not proceeding within the Ras Tanura Traffic Separation scheme and maneuvering while proceeding to and departing from the following areas shall limit their speed to 5.0 knots or to the minimum required for safe maneuvering.

The area between the South extremity of the Tanker Anchorage and the entrance to the Departure Channel (‘H’ and ‘20’ buoys).

North Holding Anchorage and within its boundaries

Juaymah LPG Anchorage and within its boundaries

Juaymah SPMs, 5.0-mile radius

Juaymah NGL Pier, 5.0-mile radius

4 Entering the Terminal

4.1 Routing to the LPG Terminal

See “Port of Ras Tanura” Section 4.1 “ARRIVAL DIRECTIONS” for general approach directions to the “Entry” buoy.

4.1.1 Arriving from Sea and From the Northern Holding Anchorage

After passing the Entry Buoy, turn toward the Juaymah Pilot Boarding Area approximately 2.5 miles NW of Buoy “A” and follow the normal routing given below.

4.1.2 Arriving from Ras Tanura Terminal

Having departed from Ras Tanura Terminal, follow the Departure Channel toward the mid-channel marker Buoy “A.” Proceed with due diligence through the Caution Area toward the Juaymah Pilot Boarding area approximately 2.5 miles NW of Buoy “A” area and follow the normal routing given below.

4.1.3 Normal Route to the LPG Terminal

During normal conditions of weather and traffic, an arriving vessel will be advised to proceed, from a position at Juaymah Pilot Boarding Area, by a route passing north of "J4" Buoy, to a position 1.8 miles E of the LPG Terminal.

4.2 Juaymah LPG Anchorage

This anchorage has been centered about 2.5 miles NE of the loading pier. The depth of water varies from 16 to 29 m and holding ground is fair. Ships shall use this anchorage only when directed to do so by Ras Tanura Port Control.

5 Berthing of Vessels

5.1 Pilot Boarding Position

The Juaymah LPG Pilot Boarding Area is situated in a position 1.5 miles E of the south end of Juaymah LPG terminal.

5.2 Mooring Procedures

5.2.1 Mooring Boats/Line Boats

Mooring boats are not used at Juaymah LPG Terminal.

5.2.2 Handling the Mooring Lines

Vessels should have heaving lines ready to take the shore messenger after landing alongside. The shore messenger should be made fast to the vessel's mooring line, which is then heaved ashore by capstan. The ship's heaving line should remain secured to the shore messenger, so that the messenger can be passed back and forth between shore and ship. Heavy wires should be sent one at a time and ropes two at a time. Jetty crews are continuously on duty to handle mooring lines but will not handle mooring lines aboard vessels.

5.3 Information on Berths

5.3.1 Construction and Alignment

There are two loading berths that are situated on opposite sides of a platform.

Berth 51 is the East (outer) berth.

Berth 52 is the West (inner) berth. There are four breasting dolphins at each berth and six mooring dolphins.

The berths are aligned 335° true compass bearing.

5.3.2 Products Available

Butane and Propane

(Note: Diesel oil bunkers and fuel oil bunkers are not available).

5.3.3 Ballast and Slop Reception

None.

5.3.4 Dock Water Density

Approximately 1.032.

5.3.5 Gangways

Shore gangways are used.

5.3.6 Cargo Loading Arms and Flange Sizes

Each berth is equipped with four 16" cargo loading arms. Each arm is fitted with connections, that can be adjusted to 12", 14" or 16" Class 150 ANSI/ASME flanges.

Each arm may be used for RLPG liquid or vapor return and each is fitted with quick connect/disconnect hydraulic couplers (QCDC). Each LPG loading line has an associated circulation return line.

5.3.7 Emergency Automatic Disconnection

All loading arms are fitted with a system for sequential automatic disconnection. This system will only be activated in an emergency situation, which requires the urgent removal of a ship from the berth.

5.3.8 Cargo Loading Rates

The maximum loading rate for individual products is 23,000 barrels per hour if only one product is requested. If the vessel is requesting two products, the maximum loading rate is 15,000 barrels per hour for each product.

5.3.9 Jetty Crews

Jetty crews are on duty continuously to operate the loading arms as required.

5.3.10 Ship/Shore Bonding

All loading connections are equipped with electrically insulated flanges, therefore ship to shore bonding wires must not be used.

5.3.11 Connecting a Vapor Line

A vapor line must be connected prior to loading LPG cargo or coolant. All excess vapors that cannot be handled by the vessel's recovery equipment, will be metered to flare.

5.3.12 Ship Manifolds

Manifolds should comply with the OCIMF publication 'Recommendations for Liquefied Gas Carrier Manifolds'. Due to the size and bulk of the QCDC couplers, a clear area around each manifold flange of at least 60 cm is required. The vessel should have suitable Class 150 ANSI/ASME reducers and spool pieces fitted to the manifolds it intends to use.

5.3.12.1 Manifold Strainers LPG

Vessels are advised to use a manifold strainer mesh suitable for LPG with a normal aperture of between 3.0mm and 5.0mm as detailed in SIGTTO/OCIMF 'Recommendations for Liquefied Gas Carrier Manifolds'.

6 Procedures at Berth

6.1 Duty Harbor Pilot and Tugs

6.1.1 Liaison

Whenever a vessel is at berth, a Harbor Pilot will stand by, either on board the vessel or on the loading platform. He will be in constant radio communication with the staff of the vessel and the jetty.

6.1.2 Stand-By Tugs

One or more tugs will stand by at anchor or moored in sight of the loading berths.

6.2 Loading Procedures

6.2.1 General

Special regulations govern the acceptance and loading of gas tankers at Saudi Aramco, which are detailed in the GASRUL section of this publication.

6.2.2 Stopping Operations

It is the responsibility of the vessel to advise the jetty operators to shut down cargo and bunker loading when the vessel's requirements of cargo and bunkers are met.

7 Completion and Departure

7.1 Vacating the Berth

Upon completion of loading, cargo calculation and disconnecting cargo arms, the vessel will be unberthed.

7.2 Pilotage

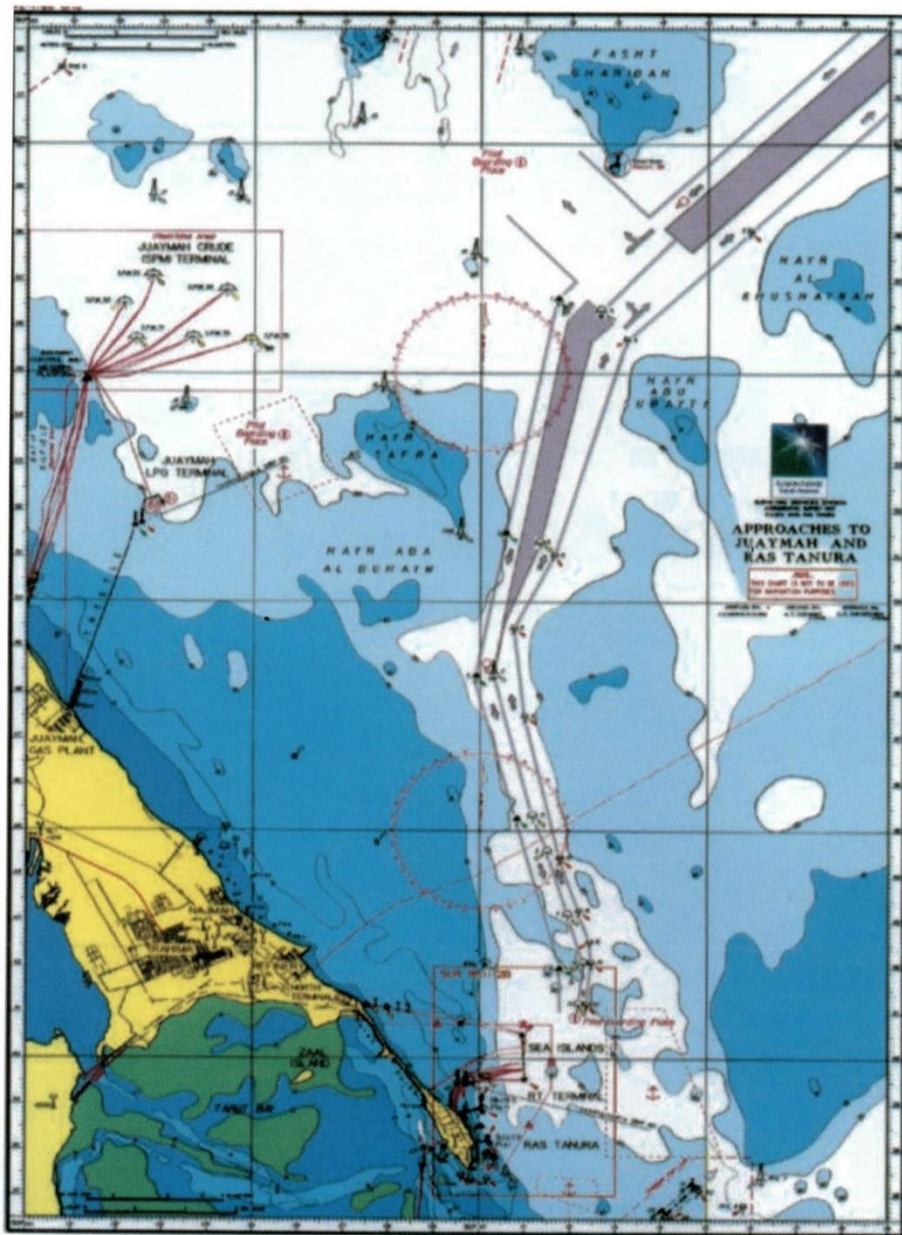
As soon as vessel is clear of the berth, the Harbor Pilot will disembark. The vessel will then be free to leave the Port, via the Juaymah Departure Channel, if early departure procedures are used and outward clearance has been received.

7.3 Proceeding to Anchorage

If the early departure procedure is not used, the vessel will proceed to either the Juaymah LPG anchorage or the North Holding Anchorage, to await document delivery by the Agent.

8 ANNEX

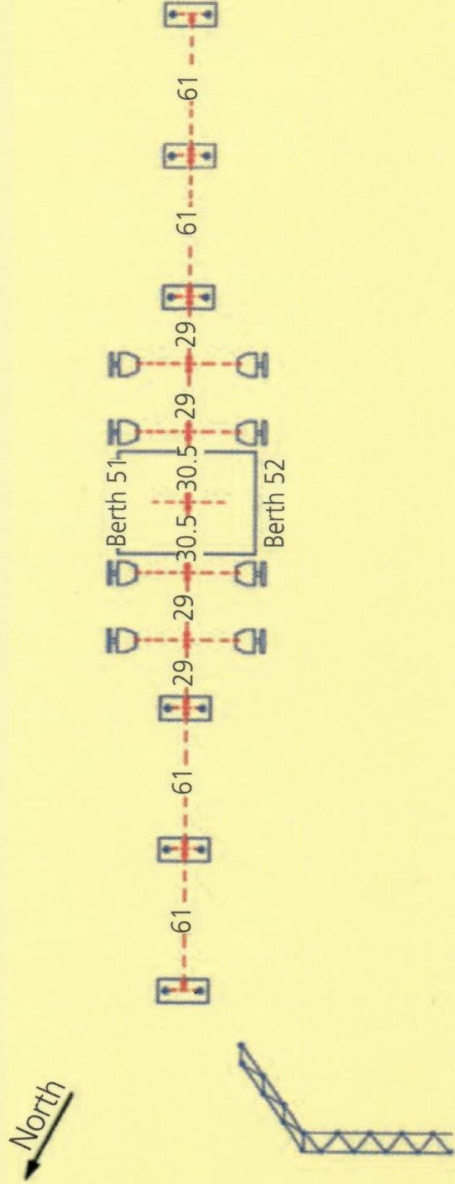
Location Chart - Approaches to Juaymah and Ras Tanura



Juaymah NGL Berths 51 and 52

Ju'amah NGL.
Berths #51 #52

Mooring Diagram



All Measurements in meters.