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RAK PORTS

GOVERNMENT OF RAS AL KHAIMAH
RAK PORTS

SAFE OPERATING PROCEDURE
TUG AND TOW OPERATIONS

RAK PORTS INTEGRATED MANAGEMENT SYSTEM

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1 Purpose and scope

This Safe Operating Procedure (SOP) describes the standard framework for tug and tow operations at RAK Ports. It ensures all activities are:

- Safe – Minimising risks to personnel, vessels, and infrastructure.
- Efficient – Supporting timely and coordinated vessel movements.
- Compliant – In line with RAK Ports regulations and international maritime standards.

The SOP covers both routine and non-routine towage and must be read alongside the RAK Ports 'Towage Guidelines', applicable marine notices and relevant operational directives.

This SOP applies to:

- **Sea Tug Master** – Responsible for navigation and safety of sea-going tug and tow combinations.
- **Port Tug Masters** – Operate port-based tugs and may conduct sea pilotage at designated locations for tug and tow combinations.
- **Class 1 and Class 2 Pilots** – Authorised to perform full pilotage operations within RAK Ports.
- **Shore Bosuns** – Lead mooring operations and assume harbour pilotage duties at designated locations for tug and tow combinations.
- **Tow Masters** – Appointed for dead-tow and non-routine operations; oversee planning, risk assessment, and execution.

2 Glossary of terms

- **Abort criteria** – Pre-defined conditions under which operations must be suspended for safety.
- **AIS** – Automatic Identification System.
- **Astern tow** – A configuration where the tug pulls the tow from behind; typically used in open water.
- **Berthing / Unberthing** – Securing a vessel at a berth or releasing it for departure.
- **Composite tow** – A rigid or semi-rigid connection between tug and tow for improved control.
- **Dead-tow** – A non-propelled unit fully reliant on external tugs for movement.
- **ECDIS** – Electronic Chart Display and Information System.
- **Emergency anchorage** – Safe anchorage locations for holding or repositioning vessels.
- **Environmental thresholds** – Operational limits for wind, swell, visibility, and tide.
- **MPX (Master–Pilot Exchange)** – A pre-movement briefing to align route, roles, and contingencies.
- **Non-routine towage** – Towage involving elevated risk or complexity requiring special planning.
- **Passage plan** – A route plan incorporating environmental data and emergency options.
- **Rendezvous point** – Pre-defined location where sea-going and port tugs meet.
- **Situational awareness** – Real-time understanding of vessel position, tow behaviour, and conditions to support safe decisions.

- **Toolbox talk** – A safety briefing conducted before each operation.
- **Towline integrity** – The condition and readiness of the towing connection.
- **VTS centre** – RAK Ports' Vessel Traffic Services Centre.

3 Overview of tug and tow operations at RAK Ports

Tug and tow operations at RAK Ports involve moving non-self-propelled units such as barges and pontoons, supported by port tugs, pilot and mooring team.

All movements must follow structured control, continuous monitoring and safety protocols.

Operational requirements and tow considerations

Requirement	Guidance Note
Tow Configuration	○ Must suit tow type and conditions. ○ Jack-up barges require precise control; cargo barges need balanced loading and steady tension.
Tug Capability	○ Use tugs suited to the tow's size, displacement and handling characteristics.
Environmental Monitoring	○ Continuously assess weather, tides, visibility and sea state.
Equipment Readiness	○ Inspect all towing gear before deployment.
Communication	○ Maintain VHF contact and ensure read-back confirmation.
Emergency Preparedness	○ Brief crew on abort criteria, towline release and emergency anchorage. ○ Ensure emergency access on accommodation barges; enforce spill prevention on bunker barges.

4 Tug and tow movements – Normal and adverse conditions

All tug and tow operations at RAK Ports must be conducted under strict safety protocols, coordinated control, and continuous environmental monitoring across all manoeuvring phases.

Execution and coordination

Personnel	Function	Responsibilities
Sea Tug Master & Port Tug Masters	Navigation & Tow control.	○ Maintain agreed speed and course; monitor tow alignment and sea state; report deviations promptly.
Pilot / Designated Tug Master	Manoeuvring guidance.	○ Direct navigation per pilotage plan; coordinate clearly with tug teams.
Sea Tug Master	Tow combination control.	○ Manage propulsion and towline; follow Pilot instructions; obtain VTS clearance before movement.
Port Tug Masters	Tug assistance.	○ Support alignment; avoid close-quarter situations; ensure precise

		manoeuvring with Pilot and Sea Tug Master.
Shore Bosun	Mooring **o**perations	○ Oversee mooring/unmooring; ensure berth readiness; assist with harbour pilotage.

Adverse conditions and abort criteria

Condition & impact	**Responsible personnel**	**Required action**
Environmental thresholds exceeded – Unsafe conditions.	Pilot / Sea Tug Master	○ Suspend operations; refer to Appendix for limits and notify VTS.
Towline integrity compromised – Loss of tow control.	Sea Tug Master	○ Halt movement; inspect towline and rectify before resuming.
Communication failure – Loss of coordination.	Pilot / Tug Masters	○ Suspend operations until contact is restored with all key personnel.
Mechanical failure – Vessel or tug malfunction.	Sea Tug Master / Port Tug Master	○ Stop operation; report issue, initiate repairs, and confirm resolution before continuing.

5 Emergency response and contingency actions

In emergencies, the Sea Tug Master shall assume full command to safeguard the tug, tow, crew, and infrastructure. Prompt judgment must be exercised to manage risks and maintain control.

Communication with the Pilot and VTS Centre should be maintained where feasible; however, all operational decisions and contingency actions remain the sole responsibility of the Sea Tug Master.

6 Communication and coordination

Clear, continuous communication is critical during all tug and tow operations. All instructions must be acknowledged without delay, using read-back confirmation over designated VHF channels. Coordination shall strictly follow the passage plan and MPX, with all parties maintaining active contact throughout.

VHF channels by Port

Port Location	**VHF Channels**
Saqr Port	Ch. 16/14; Pilot – Ch. 09.
RAK Maritime City / Stevin Rock Harbour	Ch. 16/14 or 16/69; Pilot – Ch. 09.
Ras Al Khaimah Port	Ch. 16/71; Pilot – Ch. 71.
Al Jazeera Port	Ch. 16/68; Pilot – Ch. 68.
Al Jeer Port	Ch. 16/14 or 69; Pilot – as designated by VTS Centre.

7 Documentation and reporting

Responsible personnel must maintain accurate records and report any incidents or deviations without delay.

- Immediately report equipment failure, unsafe conditions, procedural deviations, near-misses or incidents via VHF to the VTS Centre.
- Submit a completed Marine Report Form (MRF) in accordance with RAK Ports' reporting procedures.
- Ensure all reports are factual, concise and submitted within the prescribed timeframe.

8 Tow equipment and crew requirements

All tug and tow operations must be supported by competent crew and compliant, seaworthy equipment.

- Tugs and tows must be structurally sound and properly equipped for the intended operation.
- Crew must be qualified, trained and always equipped with full PPE.
- A Tow Master is required for dead-tow and non-routine movements.

Refer to: 'Towage Guidelines' under Marine Information section at www.rakports.ae/marine and Notice to Mariners No. 07 of 2023 (UAE MOEI Circular) under Notice to Mariners section at www.rakports.ae/marine.

9 Passage Planning and Master–Pilot Information Exchange (MPX)

All tug and tow operations must be preceded by a risk-based passage plan and a Master–Pilot Exchange (MPX) to ensure shared situational awareness, defined roles, and agreed abort procedures.

Activity	Responsible Personnel	Key Requirements
Passage plan & review	Sea Tug Master, Pilot / Port Tug Masters.	○ Prepared by Sea Tug Master, reflecting conditions, vessel limits, and risks. ○ Includes contingency routing and emergency anchorage. ○ Reviewed with Pilot / Port Tug Masters before movement.
MPX briefing & confirmation	Pilot, Sea Tug Master, Port Tug Masters, Shore Bosun (if applicable).	○ Led by Pilot with participation from all parties. ○ Confirms movement plan, roles, abort criteria, thresholds & communication protocols.
Documentation	Sea Tug Master	○ Update MPX as needed; complete the MPX Form.

Refer to: Passage Planning Guide and MPX Form available under Marine Forms section at www.rakports.ae/marine.

10 Port-tugs' rendezvous

Tug and tow operations must begin with a coordinated rendezvous between sea-tug and port tugs within designated port waters. This ensures all units are ready before pilot boarding or, where applicable, a Shore Bosun stationed on the berth guides the unit while transiting the channel to/from berth. All rendezvous must consider depth, traffic, tide, and prevailing weather.

Role	Responsibilities
Sea Tug Master	○ Must contact VTS Centre prior to arrival at the rendezvous point; ensure towing gear is ready; maintain VHF contact with port tugs at expected location; respond to guidance.
Port Tug Masters	○ Must confirm tug readiness; establish contact with Sea Tug Master; verify towline status; coordinate approach and conduct pre-manoeuvre briefing.
VTS Centre	○ Must monitor rendezvous progress; confirm clearance; record movement details and support communication.

11 Pilotage execution

Tug and tow movements at RAK Ports are governed by the 'Pilotage Directions'. The appropriate pilotage method is determined based on factors such as port layout, tow configuration, movement type, and navigational risk. The following overview outlines the pilotage methods applied across different port locations.

Pilotage method overview

Method	Locations	Summary & Responsibilities
Single-leg pilotage	RAK Maritime City Ras Al Khaimah Port Al Jazeera Port	○ **Nature:** A continuous pilotage phase from the pilot boarding point to the berth (or vice versa). ○ **Pilot:** Conducted entirely by a Class 1 or 2 Pilot with no personnel handover. ○ **Sea Tug Master:** Solely responsible for the safety of navigation, managing tow control, propulsion, and towline coordination. ○ **Port Tug Masters:** Assist with vessel manoeuvring, positioning, and towline tension during operations, as per the pilot's instruction.
Two-leg pilotage	Saqr Port Inner Harbour Stevin Rock Harbour Raymond Jetty	○ **Nature:** Conducted in two phases with structured handovers. ○ **Arrival:** Sea Pilotage is conducted by the Senior Port Tug Master, who hands over to the Shore Bosun near the berth for Harbour Pilotage and mooring.

		○ **Departure:** The Shore Bosun oversees initial movement until the combination clears the berth, after which control is taken over by the Senior Port Tug Master for Sea Pilotage. ○ **Note:** All transitions must be confirmed via VHF radio.
Case-by-case pilotage	Al Jeer Port	○ **Nature:** The pilotage method is determined based on tow configuration, navigational risk, and operational conditions. ○ **Pilotage:** Either Single-leg or Two-leg Pilotage–as appropriate to ensure safe vessel handling.

Shifting arrangements

Intra-port shifts require the same level of precision and safety as full manoeuvres due to confined waters, berth limitations, and the need for close coordination between all involved parties.

12 Dead-tow and non-routine movements

Dead-tow and non-routine operations carry elevated risks due to limited manoeuvrability, complex tow configurations, and environmental constraints. These movements require thorough planning, strict procedural control, and continuous oversight to ensure safety and compliance.

Dead-tow movements

A dead-tow refers to any unit without propulsion or steering, fully reliant on external tugs.

Requirement	Guidance Note
Tow master appointment	○ Designate a qualified Tow Master to remain present throughout the operation.
Risk assessment	○ Ensure the assessment covers, among other factors: tow constraints, tug capability, towline integrity, berth conditions, confined waters, weather, and contingencies.
Passage plan submission	○ Submit to the Harbour Master at least five (5) working days in advance. Include route, abort criteria, and communication protocols.
Harbour master approval	○ Obtain written approval. Shorter notice may be accepted at the Harbour Master's discretion.
Operational execution	○ Maintain VHF contact with VTS, Pilot (if assigned), and Port Tug Masters. Conduct a Toolbox Talk; ensure PPE compliance and emergency readiness. Report any deviation or incident to VTS immediately.

Non-routine movements

Includes oversized, hazardous, or high-risk tows, salvage operations, or movements in restricted areas.

Requirement	Guidance Note
Planning	○ Submit risk assessment and passage plan to the Harbour Master five (5) working days in advance.
Pilotage confirmation	○ Confirm pilotage requirements with the VTS Centre.
Safety briefing	○ Conduct a Toolbox Talk covering roles, hazards, and emergency procedures.
Operational monitoring	○ Use AIS, radar, and VHF for real-time oversight.
Emergency preparedness	○ Ensure PPE compliance; conduct emergency drills if required.
Reporting	○ Log all decisions, route changes, and incidents. Report any incident without delay.

13 Mooring operations

Mooring is an essential phase requiring safe, coordinated execution to secure or release a vessel or tug-and-tow combination at berth, supported by effective sea–shore communication.

General mooring procedure

Role	Responsibilities
Pilot	○ Instruct Shore Bosun; coordinate with Tug Masters and crew during approach and departure.
Port Tug Masters	○ Assist in vessel positioning and heading control as directed by the Pilot.
Sea Tug Master	○ Ensure anchors, winches, and lines are operational; maintain heading and tension; monitor conditions; adjust position as instructed by the Pilot.
Shore Bosun	○ Supervise mooring/unmooring; inspect berth and bollards; brief team on roles, risks, and emergency protocols; ensure communication and safety compliance; follow Pilot's instructions.
Mooring Personnel	○ Wear PPE; avoid snapback zones; operate equipment safely; monitor line tension and movement; report hazards; attend Toolbox Talks.

Mediterranean mooring (Med-Moor)

Med-Mooring is used where quay space is limited or operationally necessary. The vessel is secured

perpendicular to the quay using anchors and stern or bow lines.

Role	Responsibilities
Pilot	○ Instruct Shore Bosun; coordinate vessel alignment and anchor deployment with Sea Tug Master.
Port Tug Masters	○ Maintain vessel position and heading as directed by the Pilot.
Sea Tug Master	○ Identify anchor drop points; deploy anchors with correct scope and tension; maintain heading and tension; communicate with teams as instructed by the Pilot.
Shore Bosun	○ Confirm berth and fendering; supervise line securing; coordinate with mooring team; brief team on Med-Moor risks; follow Pilot's instructions.
Mooring Personnel	○ Follow general mooring protocols and any additional Med-Moor instructions provided during briefing.

14 Appendix – Environmental thresholds and operational actions

Thresholds for suspension	
Condition	**Suspend operations If…**
Wind speed	Exceeds 25 knots (port-specific limits apply).
Swell height	Exceeds 1.5 metres, especially if wave direction opposes the tow or wave period is less than 6.5 seconds. Decision rests with Sea Tug Master/Port Tug Masters, and the Pilot.
Visibility	Drops below 0.5 nautical miles or fog density impairs navigation.
Tide / Current	Becomes unsafe.
Note: Saqr Port's Deep-Water Terminal is not typically used for tug and tow operations; the above thresholds do not apply there.	
Required actions under adverse conditions	
Aspect	**Action**
Pre-movement briefing.	Conduct enhanced MPX and review environmental conditions.
Tug deployment.	Assign additional tugs for control as deemed necessary.
Speed and course.	Reduce speed and adjust course to maintain tow stability.
Navigation measures.	Activate radar, AIS, and sound signals; assign additional lookouts.

Emergency readiness.	Equip full PPE; identify safe anchorage points / shelter.
Mooring adjustments.	Monitor line tension more frequently; adjust for wind and current.
Crew fatigue management.	Limit shift durations; ensure rest periods to prevent fatigue-related errors.
Documentation.	Log all decisions, route changes, and emergency actions.
Resumption criteria.	Resume only when conditions return to safe limits and are verified by responsible personnel.

15 References

RAK Ports Marine Publications.	All Marine Publications are available at: www.rakports.ae/marine
Tugs and Tows – A Practical Safety Guide.	Industry best practices for towage operations.
IMO MSC.1/Circ.1255	Guidelines for Emergency Towing Arrangements.
IMO MEG4 (OCIMF)	Mooring Equipment Guidelines.
IMO MSC.1/Circ.1619	Guidelines on Mooring Design and Equipment.
IMO MSC.1/Circ.1620	Guidelines for Inspection and Maintenance of Mooring Equipment.