Tanker Operations – Ship to Ship (STS) — study guide

Ship-to-ship transfer (lightering) moves cargo between two ships at sea — two moving, moored hulls over a spill-sensitive environment. This guide covers the plan, the fenders, the roles and the sequence.[1][2]

What STS is and how it is regulated

Ship-to-Ship (STS) transfer, or lightering, is the transfer of cargo between two vessels. It is regulated by the **International Convention for the Prevention of Pollution from Ships (MARPOL)**. Personnel involved in the transfer must be fully trained and competent in all areas of the operation.

The STS Operations Plan

An STS Operations Plan should include procedures for reporting spills, an approved contingency plan, a description of the berthing and unberthing procedures and arrangements, and a step-by-step instruction for the entire STS operation. Copies of the plan must be available in the **engine room**, on the **bridge**, and at the **cargo transfer control station**. Vessels intending to carry out STS operations must notify the authorities no less than **48 hours** before operations begin (or as soon as reasonably practicable following an incident).

Sequence and location

The correct order of the operation is: **Pre-arrival Planning – Arrival – Mooring – Transfer of Cargo – Departure**. When selecting an area for the transfer, consider the availability of safe anchorage, traffic density, sea room and water depth. Actions that help reduce the risk of incidents include constantly monitoring the weather conditions, following the requirements of the STS Operations Plan, and selecting a suitable location.

Fenders

When selecting fenders, two fundamental criteria must be met: the reaction force inflicted by the fender on the vessel's structure must be **less than the hull's pressure limit**, and under the worst operating conditions the energy capacity of the fender must be **greater than the berthing energy** of the manoeuvring ship.

Roles and notices

The Master remains responsible at all times for the safety of the ship, cargo, equipment and crew. The **Person in Overall Advisory Control (POAC)** is responsible for carrying out regular safety checks before, during and after operations are complete; ensuring the STS Operations Plans of both vessels are followed; ensuring both crews have been briefed and understand their responsibilities during each phase; and ensuring an appropriate communication strategy is in place. STS notices must include

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whether the transfer will take place at anchor or underway; the name, flag, call sign, IMO number and estimated time of arrival of all vessels involved; the planned duration of the operation; and the cargo type and quantity.

Key facts to remember

- STS = transfer of cargo between two vessels (lightering), regulated by MARPOL.
- Plan contents: spill reporting, contingency plan, berthing/unberthing procedures, step-by-step instructions. Copies in engine room, bridge, cargo transfer control station.
- Notify authorities ≥48 hours before operations.
- Sequence: Pre-arrival Planning – Arrival – Mooring – Transfer of Cargo – Departure. Location: anchorage, traffic, sea room, water depth.
- Fenders: reaction force < hull pressure limit; energy capacity > berthing energy.
- Master responsible for ship, cargo, equipment, crew. POAC: safety checks, plans followed, crews briefed, communication strategy.
- STS notice: anchor/underway, vessel details and ETA, planned duration, cargo type and quantity.

Sources

1. IMO MARPOL Annex I — Regulations for the Prevention of Pollution by Oil (Regulations 40 and 41: ship-to-ship transfer operations and notification).