

Preparing a ship for recycling

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Ship-recycling: General Overview

Pre - delivery stage

1. Sales activities
2. Preparations for phase-out
 - Head office
3. Preparations for phase-out
 - Crew on board
4. On shore/ Vessel husbandry - Agents
 - Agents

Post - delivery stage

5. Supervision of phase-out
 - Head office
6. Supervision of activities at shipyard
 - Superintendent
7. Sales activities after delivery
 - Head office

Planning for Ship Breaking Procedure

- > Toxic Surveys and Marking
- > Pre-Arrival preparation
- > Arrival
- > Fumigation
- > Pre-cleaning
- > Cutting
- > Site-cleaning and sorting out

Toxic Survey & Marking

A - TOXIC LIST (SHIPS STAFF)

- > 1. Potentially Dangerous Materials in the ship's structure and equipment
- > 2. Operationally generated wastes
- > 3. Stores

B – ASBESTOS SURVEY (CONTRACTOR)

C – RADIOACTIVE SURVEY (CONTRACTOR)

D - MARKING

- > Asbestos (ACM & PACM)
- > All Ships tanks (HFO, MDO, LO, Ballast, Freshwater and void spaces)

Pre-Arrival Planning

Starting maximum 6 months in advance

- > Run down of Fuel Oils and Lubricating Oils
- > Run down of Spare Gear, Stores and Paints

Starting maximum 2 months in advance

- > Empty HFO tanks steamed out and cleaned
- > Empty LO tanks steamed out and cleaned

Minimum 1 month prior arrival

- > Prepare Recycle plan – Ready for recycling Certificate

During last month (voyage)

- > Mark and Identify all manhole covers
- > Put surplus oil drums and paint on deck – crane access
- > Freon systems pumped down to recovery bottles – bottles to deck
- > Last Commercial Port – land sludge and gas bottles

Hand-over to Yard

- > Customs formalities
- > Hand-over Ships Plans (Capacity plan / general arrangement / manhole plan / sounding tables / stability book)
- > Explain tank situation, ROB's etc. to site supervisors and yard
- > Collection of items on exclusion list
- > Explain location and operation of Generators and Main switchboard
- > Location of all pressure tanks (Air, CO2 etc.)

Fumigation

- > 1. Fumigation
 - > At the requirement of the local government
- > 2. Ventilation
 - > 1. open the doors and windows (break if required)
 - > 2. Minimum 24 hours

Pre-cleaning

Area Division

1. Accommodation
2. Engine Room
3. Side Passages
4. FWD Store Room
5. Steering Gear Room
6. Oil Tanks
7. Cargo Holds
8. Water Blast Tanks and Double Bottoms

Remarks:

1. After ship arrives, release all the pressure tanks (CO₂, Air & N₂) and collect all portable pressure tanks or bottles
2. External power to ER lighting only (from switchboard). All other distribution cut.
3. Other areas light/venting holes cut.

Pre-cleaning (1) Accommodation (A)

Asbestos (If ACM panels or other ACM in huge amount)

1. Close all the accesses with WARNING marks
2. Hand-removal of the Asbestos panels
3. Packing in plastic sheets
4. Discharging and stocking or sending to burial site

The workers should be protected as standard.

Asbestos (If only ACM seal on doors and doors and other situation in min. amount)

1. Hand-removal in wet with spray-water
2. Packing into plastic bags

The workers should be protected (in a simple way accepted)

Pre-cleaning (1) Accommodation (B)

Steps:-

1. Loose items (paper, chairs, bed-mesh etc)
2. Fire-detector (If radio-active)
3. Fixed furniture (bed, cabin etc)
4. Panel (If ACM, as the standard) & ceiling
5. Fibre-glass insulation
6. Cables
7. Flooring
8. Final cleaning

Remarks:-

1. Cable glands to remain
2. Cold-work (any hot-cutting should be approved with the standby of Fi-Fi water hose)
3. Cutting holes for discharging
4. Any items for re-use should be dismantled carefully

Pre-cleaning (2) Engine Room

Included as followings:-

- > Collect and remove all the batteries
- > Engine control room (as the accommodation)
- > Workshop (all the loose items and wooden frame)
- > Electric room (all the loose items and the wooden frame)
- > Recovery of Freon
- > Collection of oil (pumping out & wipe off) in tanks
- > Collection of oil in the main engine, auxiliary engine, oil-separators, coolers.
- > Disconnection of the oil pipes connected to the equipment
- > Collection of loose items
- > Washing down of plates and oil-pans
- > ACM insulation
- > Cable cutting

Pre-cleaning (2) Engine Room

Remarks:-

- > The cleaning of sludge tank, oil bilge tank and LO sump tank can be done at a future time after cutting open of engine room (depending on the site situation)
- > Cables are cut IWO blocks and left to be removed with blocks for stripping ashore
- > Tank top and pipes are washed down in future after removal of top part of engine room
- > The washing down and cleaning of some side HFO tanks will be up to the site situation
- > One more pumping and cleaning of all the tanks after trimming (oil from pipes)
- > No hot-cutting permitted
- > Cable-cutting by hand

Pre-cleaning (3) Side Passage

Included as followings:-

1. Removal of all the loose items
2. Removal of all the wooden frames
3. Cutting and removal of lights
4. Cutting and removal of cable
5. Draining off the oil for the winches and bow-thruster

Remarks:-

1. No hot-cutting permitted for the cable and lights
2. Safety pre-caution for any lighting holes
3. Some cables can be cut and removed with block for stripping at site

Pre-cleaning (4) FWD Store Room

Included as followings:-

1. Removal of all the loose items
2. Removal of all the wooden frame
3. Cutting and removal of lights
4. Cutting and removal of cable

Remarks:-

Some cables can be cut and removed with blocks for stripping at site

Pre-cleaning (5) Steering Gear Room

Included as followings:-

1. Collection of loose items
2. Pump and drain oil from tanks and pipes
3. Cable cutting

Remarks:-

1. No hot-cutting
2. Some cable can be cut and removed with blocks for stripping at site

Pre-cleaning (6) Oil Tanks

Tanks in engine room as the above

Other tanks:-

1. Open the manholes and pump out
2. Collection of oily sludge
3. Wipe off

Remarks:-

1. Washing down depends on the situation
2. Collection of the oil sludge and wiping down depends on situation
3. After trimming, oil will drain out from pipes. Further collection needed
4. Full ventilation is requested before any entry
5. Some tanks flooded with water for safety

Pre-cleaning (7) Cargo Hold

Included as followings:-

1. Cutting of lights
2. Cutting of cable

Remarks:-

1. The insulation can be removed in future ashore with blocks (side insulation and tank top insulation)
2. Cables can be removed ashore with blocks

Pre-cleaning (8)

Water Ballast Tank and Double Bottom

The water ballast should be checked by local government for the treatment – directly pump out or collection

Cutting (1) Onboard

Due to the safety and trim, the procedure should be:-

1. Accommodation
2. FWD till No 1 or No 2 cargo hold
3. AFT Steering gear room – Side wall of cargo holds – Rudder – Propeller – Shaft – Double bottom
4. Engine room – Level by level – remove equipment and cutting of structure – double bottom
5. Side wall of FWD cargo hold
6. Double bottom – last cutting - beached

Cutting (1) Onboard

Remarks:-

1. Cleaning and cutting operations to be done separately
2. Bottom pipes and tank tops of the engine room should be washed down before cutting
3. The size and the weight of the double bottom for last cutting depends on the breaking solution of the yard (on beach, by floating barge etc)
4. Any equipment for re-use should be marked and dismantled carefully
5. Water pump should be on standby all the time
6. The cutting should be from up to down and from outside to inside

Cutting (2) Site

The cutting of the blocks at site should be:-

Remove cable (if any)

Remove insulation (if any)

Removal of the burnable wood, plastic, rubber etc

After finishing the above, the cutting can be conducted (another area)

Remarks:-

Water pump should be on standby all the time

Water buckets with water should be easily available at all times

Site-cleaning and sorting out

The requirement should be:-

1. The daily cleaning should be conducted
2. No cutting at the discharging site
3. No cutting in stack
4. Sorting out should be conducted all the time
5. The final treatment and follow up should follow the government environmental rules as regard to burial of garbage, burning, oil disposal, plastics, rubber, electric equipment etc

High-light for the safety, health and environment

During breaking, the safety, health and environmental rules should be followed throughout the whole procedure, highlighted as followings:-

1. Protection whilst working at height
2. Daily protection for the workers – mask, gloves, safety shoes
3. Oil boom
4. Oil and oily sludge
5. Garbage
6. Freon
7. Asbestos
8. No burning of cable
9. Fire-fighting (water pump)
10. No break-up of ship through bad trimming

The vessel arrived at the yard on 9th September 2006

Work started on Pre-cleaning on 18th September 2006

Work started on Cutting process on 3rd October 2006

Pre-cleaning confirmation certificate signed 29th November 2006

Demolition confirmation certificate signed 5th January 2007



ARRIVAL AT YARD



ACCOMMODATION CLEARANCE



ACCOMMODATION CLEARANCE



FURNITURE FOR RE-SALE AND MATERIAL SEGREGATION



RADIOACTIVE HEAD AND GAS BOTTLE COLLECTION



SIDE PASSAGEWAY CABLE CUTTING



ASBESTOS IDENTIFICATION



SYSTEM FREON REMOVAL



ASBESTOS REMOVAL AND BAGGING



ACCOMMODATION PRE-CLEANED



COLD STORES PRE-CLEANED



OIL BARGE AND ENGINE ROOM OIL PUMPING



HFO TANK CLEAN



HATCH LID INSULATION REMOVAL



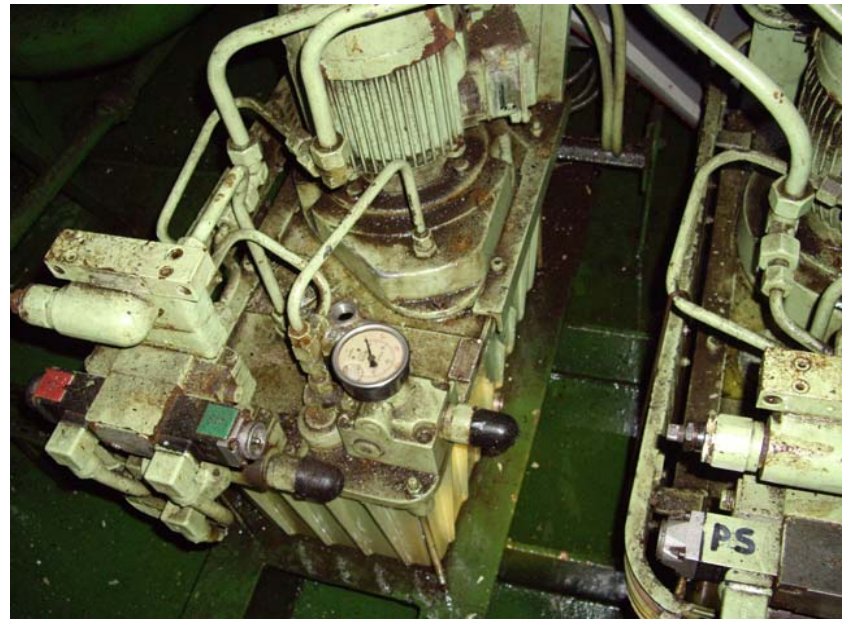
RE-SALE OF CABIN EQUIPMENT



Week Three



STEERING GEAR CLEAN OUT AND OIL DRAIN



ASBESTOS STORAGE



Week Four



BLOCK REMOVAL



INCINERATOR IN OPERATION



FURTHER CLEAN ENGINE ROOM TANKS



ACCOMMODATION REMOVED AND CUTTING AFT



ENGINE ROOM CUTTING AND EQUIPMENT REMOVAL



CABLE STRIPPING



CUTTING AFT AND CARGO HOLD



CUTTING SITE AND OIL BOOM IN PLACE



Week Seven



PROPELLERS REMOVED



TRIMMED BY HEAD FOR ENGINE ROOM CUTTING



ENGINE ROOM DISMANTLE



ENGINE ROOM PARTS ON SITE



BLOCK CLEANING AND CUTTING



ENGINE ROOM EQUIPMENT REMOVAL



ENGINE ROOM DOUBLE BOTTOM CLEAN



ASBESTOS BURIAL SITE - WUXI



Week Eleven



CUTTING MID SECTION TO FORWARD



Week Thirteen



BLOCKS ON SITE



DOUBLE BOTTOMS BEACHED AT HIGH TIDE



Next ship please!

Thank you.

