

COWI/RWEC/Leitat

Recovery of Obsolete vessels not used in the fishing trade

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Guideline on recycling of Government Owned Vessels (including Navy vessels)

Introduction

Purpose

1. This guideline offers information to assist those who may need to deal with the dismantling of government owned vessels or to establish arrangements for so doing. It is particularly addressed to those who either are planning to introduce new schemes where these have not existed before or to offer suggestions for improvements to current schemes.
2. This guideline is intended to be of interest to operators of ship dismantling facilities, EU governments holding vessels, port and harbour operators, local, regional and government authorities.
3. This guideline provides consistency with some of the key requirements of the Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (HKC) of relevance for Government owned vessels in the EU. According to Article 3 (Application) the HKC does not apply to government owned vessels:

3.2 "This Convention shall not apply to any warships, naval auxiliary, or other ships owned or operated by a Party and used, for the time being, only on government non-commercial service. However, each Party shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships act in a manner consistent with this Convention, so far as is reasonable and practicable."

Scope

4. This guideline focuses on recycling practice for government owned vessels whether above or below 500 Gross Tonnes and undertaking international voyages or not. The recycling facilities serving these vessels are located mostly but not exclusively within the European Union. Some facilities outside the EU capable of treating such vessels can also be available if they are located in OECD countries. Standards at these facilities should be equivalent to those found in the EU.

Exclusions – Matters not covered

5. This guideline does not cover the downstream treatment of wastes generated from the dismantling process. These will be expected to be regulated and managed in accordance with

Community law and its implementation with respect to waste transportation, waste treatment, landfill and integrated permitting etc. as appropriate.

Background

Scale

- The contribution of EU government owned vessels to the totality of European ship recycling is modest. In terms of quantities the total market of ship dismantling in Europe, according to the French MIDN report- Interdepartmental Committee on the Dismantling of Civilian and Military End-of-Life Ships, Premier Ministre (MIDN 2007), was thought to be about 500,000 to 700,000 tonnes over a period of 10 years. Average lifetimes for such ships are expected to be consistent with commercial fleets although for navy ships longer average lifetimes of 47 years are reported [COWI 2011].

Government Vessel Types and Hazardous Materials

- In both naval and other Government service there is a wide range of type and size of vessel in use. All of them may be considered as possible candidates for recycling. The navy vessels comprise two main types, those employed specifically for defence purposes with combat capability and alongside them is a range of support vessels, auxiliaries – which may be classified as civilian support vessels.
- Government owned vessels may comprise the following types:

Government Owned Vessel Types		
Non Navy Vessels	Navy Vessels	Navy Vessels (auxiliary support)
Cable layers	Aircraft Carriers	Amphibious Ships
Dredgers	Assault Ships	Casualty (Hospital) Ships
Diving platforms	Coastal Training Craft	Personnel Ferries
Freight vessels	Destroyers	Repair Ships
General cargo	Frigates	Salvage and Recovery Vessels
Lifeboats	Ice Patrol Ships	Stores Ships
Motorboats	Landing Platforms	Tankers
Passenger Ferries	Mine hunters	Tenders
Research and monitoring vessels	Patrol Craft	Tugs
Search and rescue vessels	Rigid Inflatable Landing Craft	
Tugs and offshore workboats	Survey Ships	
Yachts	Submarines	

- These vessels vary in size, from under a tonne for small rescue vessels, a few tonnes for large rigid inflatables, 20 tonnes for vessels such as personnel ferries, to aircraft carriers of more than 20,000 tonnes.
- The materials of construction are usually steel, except for the rigid inflatables. Of interest may be the mine countermeasures ships (minehunters). Their specialised operational role requires the least amount of ferromagnetic metal to be present, hence they typically have hulls of glass

reinforced plastic. This is similar to that used for many recreational vessels and poses challenges for recycling where the intrinsic value of a vessel without significant re-useable steel is depressed (often negative). Some compensating value may however be provided by a higher proportion of more valuable non-ferrous metals.

11. Naval vessels tend to have longer average life times in comparison to merchant vessels. As a result and because of their specialised nature the likelihood of more hazardous materials such as asbestos and polychlorinated biphenyl (PCB) being found is greater. Obtaining a sufficiently accurate assessment of the quantity of asbestos on such ships is important as identification, removal and disposal of asbestos can add significantly to the cost of recycling. For example an asbestos survey itself may cost some EUR 35.000 alone for a large naval vessel. This substance is often located in poorly accessible spaces within a ship increasing the difficulty of obtaining an accurate survey result.
12. Undertaking a complete Inventory of Hazardous Materials, in much the same way as would be carried out for Hong Kong Convention ships is likely to be needed in order to establish what is on board when preparing a ship for recycling.

Dismantling Facilities Suitable for Government Owned Vessels and Preparation for recycling

13. In contrast to commercial ships there is a much greater likelihood that a government-owned vessel will remain in the ownership of the State until the end of its working life and then be available to be recycled at a suitable facility in the EU. This implies that such vessels are also much more likely to be dispatched from a home port at this stage and hence if undertaking a voyage to another EU Member State as its final voyage (whether under tow or not) can be considered to be subject to the Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste (Waste Shipments Regulation).
14. A strategy for government-owned vessels should identify relevant criteria as minimum standards for a recycling facility to ensure that wherever a government-owned ship is recycled it would be in accordance with requirements for environmentally sound management and EU law. Facilities wishing to bid for these vessels for recycling would have to demonstrate their ability to comply with such criteria. .
15. A process for sale by tender of government-owned vessels should require an evaluation of potential ship recyclers within OECD countries and take into account relevant applicable standards for environmentally sound management of ship-dismantling operations.
16. Dismantling and waste handling can be monitored and a final report on the outturn of wastes produced (against the original estimates in the inventory). One example of this is the recycling of the UK's auxiliary support vessel "Rame Head" (UK Disposal Services Authority 2010).

Principles

17. The sale and/or procurement (i.e. where a ship is offered to be recycled not for purchase by a bidder but with payment) of government vessels for recycling should meet the essential conditions of compliance with relevant EU law at all stages of the activity.
18. There are three components for environmentally sound recycling of government-owned ships :

- To establish the policy framework
- To ensure a ship is properly prepared for recycling, and
- To ensure facilities meet appropriate requirements for safe and environmentally sound recycling.

These three components are detailed below.

Establish the policy framework

19. The following actions should be put in place:

- At the policy level: Establish appropriate policies to underpin a commitment to environmentally sound ship recycling; (see e.g. the UK Ship Recycling Strategy)
- At the practical level: Institute appropriate procedures and information systems to ensure that all government owned ships are identified, including those that may not be on the domestic register of the State.

Apply procedures for ship preparation

20. The procedures and standards here are based on those set out in the UK Ship Recycling Strategy.

21. The following actions should be put in place:

- Prepare an inventory of hazardous materials on board Government owned vessels as soon as possible and at least before the ship is intended to be disposed of by recycling
- Establish a method for determining that the government owned vessel in question has reached the end of its working life or is to be disposed of by recycling (as opposed to being sold on as a functioning ship in good working condition)
- Berth at a home port to keep it safe while being prepared for sale for recycling
- Destock and run down the ship's fuels, spares, stores and other consumable items:
 - For naval ships, the removal of classified equipment and demilitarisation may be carried out where necessary
 - Removal of hazardous materials as far as possible that do not affect the seaworthiness of the ship. This may be regarded as an optional step depending on the proposed final destination; in any event it is not expected that all hazardous materials can be removed.
- Produce the Inventory of (any remaining) hazardous material (or its updating) to determine the remaining materials left on board
- Prepare offer for sale by tender or other means to obtain best financial value:
 - A process for scrutiny of bids to evaluate them with respect to both the environment and health and safety aspects as well as price
 - An assessment of the relevant permits of proposed destination recycling facility to determine suitability of standards.
- Make a contractual agreement signed with the successful contractor to recycle in accordance with conditions including environmental requirements and downstream waste management of residues
- Prepare for tow or final voyage- this involves checking that the ship remains seaworthy and possesses all necessary certificates for tow or sail and under power can power navigation lights and other equipment
- Complete relevant permissions – e.g. in case of a transboundary movement, the need for a notification pursuant to the provisions of the EU Waste Shipment Regulation would depend on whether or not the ship has obtained the status of 'waste'

- Complete transfer of responsibility or “handover” procedure from ship owner to recycler, being careful to define the point at which responsibilities lie, e.g. responsibility for the vessel while under tow
- Monitor at the recycling facility the recycling against contract conditions to ensure that the ship is dismantled without causing pollution or harm to people, the actual quantities of waste and hazardous waste that are found as dismantling takes place and their safe disposal at appropriately permitted and managed facilities
- Accept completion of dismantling by sign-off procedure between the parties.

Determine Recycling Facility Standards

22. The following conditions should be met by the facility, which:

- Should be a registered business entity within the applicable national framework
- Should be auditable by the organization selling the vessel and provisions should be made for site visits (if required)
- Should be in possession of all relevant permits, approvals and licences required by international, national and local agencies, and will provide a list and evidence of these on request
- Should have adequate insurance to cover health and safety liabilities and environmental remediation in compliance with local legislation
- Should identify all entities to be involved in the ship recycling process, including sub-contractors, waste management companies, asbestos removal companies, and provide evidence of their licences, approvals, permits, etc.
- Should provide a list of hazardous materials the facility is capable of handling including related details of the final disposal facility
- Should have prior experience in recycling ships or other marine structures and will have professional references readily available (not applicable for new facilities)
- Should declare whether it, its parent company(ies), subsidiaries or affiliates, or any proposed sub-contractors or other entities involved in the recycling process, has received any fines, notices, etc. from regulatory entities in the last five years
- Should be in receipt of the following documents prior to the commencement of recycling to assist in the development of a Ship Recycling Plan:
 - A ‘Ready for Recycling’ certificate (or its equivalent)
 - The vessel’s Inventory of Hazardous Materials (and their location) on board
 - Any ship plans or drawings.
- Should issue a ‘Recycle’ certificate upon completion which confirms the ship materials and wastes have been processed and removed in an environmentally sound manner
- Should be conversant with and make reference to the following sets of Guidelines throughout the recycling process:
 - Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships published by the Secretariat of the Basel Convention
 - IMO Guidelines on Ship Recycling developed by the International Maritime Organization
 - Safety and Health in Shipbreaking: Guidelines for Asian countries and Turkey developed by the International Labour Organization.
- The facility, in conjunction with the shipowner, should be responsible for the development of a ship recycling plan for the vessel and should have procedures in place to develop such a plan. The plan should include provisions for:
 - Worker health and safety
 - Environment including waste management.

23. Both existing and new facilities should be equally suitable provided that they have or obtain all the necessary regulatory consents and satisfy all other requirements, including those of the competent authorities for transboundary waste controls in accordance with the Waste Shipments Regulation.
24. For worker health and safety suitable conditions should be met. The facility should be required to implement methods and procedures to protect, monitor and enforce worker health and safety. These should reflect applicable requirements of national and EU legislation or equivalent as appropriate including for example the ILO Guidelines on Safety and Health in Shipbreaking.
25. The facility should be required to have procedures in place to cover the following operations in respect of worker health and safety:
 - Confined and enclosed spaces (procedures for identifying and working in dangerous atmospheres)
 - Welding, cutting, grinding and heating (procedures for ventilation, personnel monitoring for lead/cadmium/mercury/beryllium exposure, protection of personnel, training, respiratory protection, torch cutting, permits and inspections (including hotwork certification))
 - Fire prevention/protection (procedures for fire watch, raising alarm, hazards, fire extinguishers, hose lines, water supply, fire fighting equipment, training, proper handling and storage procedures and identification of potential ignition sources)
 - Compressed gas cylinders (procedures for transporting, moving, securing and storing, and the use of hoses and torches in the vicinity of or on the bottles)
 - Scaffolds, ladders and workman aloft, other working surfaces (procedures for use of personnel flotation devices, guarding of deck openings and deck edges, platforms, personnel fall arrest systems, guardrails and access to ships)
 - Housekeeping and temporary lighting (procedures for work areas, including aisles, passageways and temporary floor openings)
 - Health and sanitation (availability of toilet and washing facilities, changing rooms and eating and recreational areas)
 - Communication of hazards (procedures for providing information to employees on potential hazards associated with the job)
 - Asbestos Abatement Programme or similar (exposure assessment processes, use of regulated areas, in-process monitoring procedures, engineering controls and work practices, qualified personnel, measures to prevent exposure of workers and the environment to asbestos) – see ILO Code of Practice (Appendix C of Basel Guidelines)
 - Gear and equipment for rigging and material handling (procedures for testing and inspection of ropes, chains, slings and hooks, chain-falls and hoisting and hauling equipment)
 - Personal Protective Equipment (procedures and equipment for protection of employees from risks associated with ship recycling)
 - Employee emergency plans (emergency escape routes, procedures to account for employees during evacuations, alarm systems, weather plans, rescue and medical duties, treatment of injured personnel and training procedures)
 - Lead Abatement Programme or similar (procedures to provide ventilation, hygiene facilities and practices, shower/change rooms, warning signs, medical surveillance, exposure monitoring, testing and training)
 - Spill containment and emergency response plans (procedures for clean-up activities, emergency equipment, site security, etc.)
 - Diving operations (a full diving programme, if required).

26. The facility should be required to have a system which reports, records and notifies work-related injuries, diseases and ensure the competence of its employees through safety and skills (use of tools, machines and other equipment) and to monitor its workers' health and work environment and provide occupational health services as required.
27. The facility should implement methods and procedures to protect the environment. These should reflect applicable requirements of national legislation and, where appropriate, the Basel Convention Technical Guidelines for the Environmentally Sound Management of Dismantling of Ships. The facility should demonstrate the following in respect of the environment:
- That it engages in safe and effective waste management and has operational waste reception facilities (for storage of waste on site prior to remediation, recycling and/or disposal either on or off site)
 - Has procedures in place for managing potentially hazardous materials (including identification (sampling/analysis), abatement, removal, treatment, storage, transportation and disposal), including:
 - Fuel, lubricants and coolants; chemicals in drums, buckets, pressurized bottles, stored solvents and other chemical stocks
 - Cargo residue
 - Floatable materials (e.g. Plastics, Styrofoam etc.)
 - Materials possibly containing PCBs, such as wiring insulation, paints, transformers, lighting ballasts, capacitors and other electrical items
 - Waste water/sludges, sewer or grey water, residues of bilge and ballast water
 - Harmful aquatic organisms, non-indigenous species and marine growth in ballast water and on the hull, and sediments in ballast tanks
 - Asbestos used in older ships as insulation material
 - Chromium (ballast water treatment, paint coatings, gaskets, etc.)
 - TBT paints (collection and containment of all wastes resulting from paint removal process).
 - That work will be carried out in a controlled environment so that any loss of pollutants can be monitored and managed (e.g. bunds and booms for wet dock work, work planning to minimise pollutant loss etc. or within an area such as a dry dock that allows full capture of all liquid/solid waste (e.g. oil/water/bilge/ballast/etc.))
 - That the local environment is monitored at regular intervals to mitigate the effects of pollution. A monitoring programme is required for:
 - Ground/groundwater
 - Seawater/sediments
 - Air, noise, vibrations.
 - Has management controls and procedures in place.
28. Operationally the facility should provide details of the methods and procedures involved, and sequencing of the ship recycling process including work that will be accomplished prior to and after the ship arrives at the facility. These should reflect practices recommended in the ILO, IMO and Basel Convention Guidelines on ship recycling.
29. The following actions should be put in place:
- The facility should be required to detail the following elements in a ship recycling plan or similar document:
 - A schedule showing the progressive order in which the work will be carried out

- Details of the arrangement of the facility to accommodate the flow of regulated material and completion of recycling, including the production flow of hazardous/regulated material and the layout/arrangement of the facility
- Details of the arrangements with other facilities for the safe handling, transport and ultimate recycling/disposal of all wastes
- Provide step-by-step procedures to be followed when performing ship recycling, including:
 - Plans for using dry dock, slipway, floating dry dock or other method
 - Procedures for identification and labelling of hazardous materials
 - Measures to be taken to ensure stability and strength during hull recycling
 - Procedures for final recycling of underwater hulls
 - Measures to be taken to prevent flooding/sinking of the hull
 - Measure to be taken to prevent slag or other contaminants from entering the water
 - Cleaning tanks and bilges prior to recycling
 - Dealing with piping and fittings (not burning but cutting).
- Procedures to be used for securing the vessel in the event of severe weather
- Procedures for spill cleanup and notification.
- The facility should be required to have procedures in place for hot work for example cutting using oxy-acetylene equipment, and entry into enclosed spaces on board ships including:
 - 'Gas free for hot work' certification carried out by a relevant and appropriate body
 - Continuous monitoring of enclosed spaces
 - Continuous ventilation of tanks and compartments
 - Cleaning of oil tanks and compartments before hot work commences
 - Testing of compartments for presence of toxins, corrosives, irritants and flammable vapours before entrance and commencement of cutting and hot work".

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Annex I - References and further information

References

Guidelines on Ship Recycling, 2003, International Maritime Organization (IMO) available at:
http://www.imo.org/includes/blastDataOnly.asp/data_id%3D11404/ResShiprecycling962.pdf.

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MIDN, 2007: Interdepartmental Committee on the Dismantling of Civilian and Military End-of-Life Ships (MIDN), Premier Ministre, March 2007.

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Recycling of Rame Head Auxiliary Support Vessel, 2010: Disposal Services Authority, UK Ministry of Defence, Defence Equipment and Support, , (http://www2.edisposals.com/docs/rame_head.pdf).

'Safety and Health in Ship Breaking, Guidelines for Asian Countries and Turkey', International Labour Organization (ILO) 2004, available at:
<http://www.ilo.org/public/english/protection/safework/cops/english/download/e000020.pdf>.

Technical guidelines for the environmentally sound management of the full and partial dismantling of ships, Secretariat of the Basel Convention, 2003 ISBN : 92-1-158620-8

UK Ship Recycling Strategy 2007, Department for Environment Food and Rural Affairs, 17 Smith Square London (Crown Copyright).

Further Information- Inter-Governmental Organisations (IGOs)

The Basel Convention

The Basel Convention on the Control of Transboundary Movement of Hazardous wastes and their Disposal (1989) has dealt at some length with the issue of ship dismantling and the web site of the Secretariat to the Convention has a specific page that brings together practical information and documents from various sources on the environmentally sound management of ship dismantling. Links to items discussed at meetings of the Convention Parties and other documents are at <http://archive.basel.int/ships/compilation.html> . This includes references and links to guidelines produced by the Basel Convention, ILO & IMO.

The European Commission

The European Commission has a dedicated section on its website that deals with European interests in ship recycling; the approach to a European Strategy for ship recycling, research and studies carried out and links to other organizations involved with this topic; all may be found at

<http://ec.europa.eu/environment/waste/ships/index.htm>

This also links to the work of the European Maritime Safety Agency on ship recycling at Work of the European Maritime Safety Agency (EMSA) on ship recycling:

See <http://www.emsa.europa.eu/>

International Labour Organisation (ILO)

The ILO adopted technical guidelines on ship dismantling in 2004: "Safety and Health in Shipbreaking – Guidelines for Asian countries and Turkey".
http://www.ilo.org/public/libdoc/ilo/2004/104B09_279_engl.pdf

International Maritime Organization (IMO)

The IMO is the UN specialized agency dealing with maritime issues including ship recycling and the Hong Kong Convention was developed under its auspices. The IMO continues to develop various guidelines on the recycling of ships.

Further information on ship recycling and progress on development of the Hong Kong Convention Guidelines carried out by the IMO and its Marine Environment Protection Committee can be found at : <http://www.imo.org/ourwork/environment/shiprecycling/pages/Default.aspx>

Further Information - Non-Governmental Organisations (NGOs)

The Industry Working Group on Ship Recycling in October 2009 adopted the 'Transitional Measures for Shipowners Selling Ships for Recycling'.

A number of NGOs have been active in the area of ship recycling and served to highlight issues including those of abandoned ships. The principal NGOs involved are:

- Basel Action Network (BAN)- involved with a wide range of environmental issues;
- Greenpeace – has published a number of reports about ship breaking;
- NGO Ship Breaking Platform- a grouping of NGOs concerned with ship breaking issues;
- Robin des Bois www.robindesbois.org an NGO involved in maritime security and environment publishes regular information bulletins and annual surveys on shipbreaking in French and English, the web site has a page on "demolition des navires".

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