

THE NGO PLATFORM'S GREEN SHIP RECYCLING STANDARD

-- DRAFT 2 -

23 June 2008

1 Introduction

The Green Ship Recycling Standard has been created by and for the NGO Platform on Shipbreaking. It is designed to differentiate between leaders in the ship recycling/scraping industry and those that operate with technologies, methodologies and policies that are substandard and too often result in breaches of international law, damage to human health and the environment. Currently, in our view, there is no standard that sets the bar high enough to preclude such damage while still allowing the leaders in the industry to be identified. To date, the lack of any such standard has resulted in industry and governments unable to determine where to direct vessels for socially and environmentally sound ship recycling.

This draft document is now in the hands of the recycling industry and leading experts. with a request for suggested additions, comments and concerns by experts in the field. This is currently a working document and is intended to be finalized later in 2008 by the NGO Platform. We are seeking a standard which can be met immediately by some existent recyclers and to which many more can commit to meeting in the future. We hope this document will serve as a magnet of responsibility for this industry, drawing facilities steadily toward it for the next five years. Due to the rather poor situation in the industry, we cannot expect at this time to be able to get the majority of existent operators to comply with the standard, but the standard is designed so that some of the leaders in the industry will be able to comply immediately.

Please send your comments to Ingvild Jennsen (ingvild@shipbreakingplatform.org) and Jim Puckett (jpuckett@ban.org). We look forward to hearing from you and thank you in advance for your assistance in this project.

2 Standard

2.1 Requirements Prior to Dismantling/Recycling

2.1.1 Alternative Uses

2.1.1.1 Floating or Land-Based Re-use of Ships: In recognition of waste management hierarchies that correctly favor re-use destinations over recycling, Green Ship Recycling Facilities will favor such re-use over recycling in principle, and therefore promote and assist in the preparation of ships for historic preservation, retrofitting, restoration, refurbishing and repair of ships that have a viable and safe proposition for extended life as a structural ship. Such uses can include further life as a ship, housing, offices, hotels, museums, conference centers, etc. as long as hazardous materials are sealed and made safe from release.

2.1.1.2 Ocean Dumping / Placement: Facilities recognize that the environmental benefits of recycling and proper waste management are likely to far outweigh any economic or environmental or other benefit gained from utilizing ships as artificial reefs, military exercises, etc. when they are scuttled, dumped at sea or placed in the marine environment. No Green Ship Recycling Facility can support or be involved in preparing or selling ships and other similar structures for use as artificial reefs or other forms of aquatic dumping or sinking in aquatic environments.

2.1.2 Legal Requirements

2.1.2.1 International and National Waste Trade Law: A Green Ship Recycling Facility will operate and ensure all business practices

are fully consistent and in compliance with international waste trade law regardless of whether that law is currently in strict legal force in the countries concerned. A Green Ship Recycling Facility will also operate in accordance with all national waste trade law. Finally, a Green Ship Recycling Facility will also operate in a manner which will not require others to violate any such national or international laws. We recognize that the legal instruments listed in Annex I are likely to legally apply to ships that are sent for recycling if they contain hazardous substances such as residual fuels, asbestos, polychlorinated biphenyls (PCBs) or toxic metals (see Appendix B of the Basel Guidelines: Technical guidelines for the environmentally sound management of the full and partial dismantling of ships).

For the purposes of this standard, the letter and spirit of the Basel Convention and the Basel Ban Amendment (Decision III/1 of the Basel Convention) are recognized as applying, even in countries where these instruments are not in legal force. This will mean that a Green Ship Recycling Facility must accomplish the following prior to the final voyage of all ships containing Basel listed hazardous wastes, with which a Green Ship Recycling Facility is involved as importer or exporter, directly or through intermediaries, or other active involvement::

- A full inventory of remaining Basel listed hazardous wastes remaining on the ship must be accomplished and Article 6 of the Basel Convention describing full notification and consent between competent authorities must be undertaken and successfully completed.
- Ensure that the receiving facilities are a Green Ship Recycling Facility that can demonstrate it adheres to this standard.

And for instances when the final transboundary voyage is destined for a non-Annex VII country (not

OECD/EU/Liechtenstein), the exporting Green Ship Recycling Facility must:

- Pre-clean such ships in an Annex VII country Green Ship Recycling Facility meeting this standard. This pre-cleaning must involve removing all Basel listed hazardous wastes to the extent possible while still allowing the ship to be safely towed to its final destination. Hazardous Wastes that cannot be removed and still allow the ship to be safely towed to its destination, must be repatriated to an Annex VII country for final disposition in a government approved disposal or recycling facility.

2.1.2.2 International Labor Law: A Green Ship Recycling Facility must operate in accordance with applicable international labor laws and recommendations among the Conventions and recommendations listed in Annex III of this document, whether or not such laws are currently enforced in the countries concerned.

2.1.3 Licensed and Permitted: A Green Ship Recycling Facility possesses all applicable licenses and permits for operation including hazardous waste management licenses. Furthermore, a Green Ship Recycling Facility only uses fully licensed and permitted facilities for downstream waste management.

2.1.4 Other Prerequisites

2.1.4.1 Testing and Inventory: Under no circumstances shall a Green Ship Recycling Facility begin operations on a ship without there having been a full evaluation and testing of materials on board and the establishment of a comprehensive inventory of hazardous wastes/materials, including at a minimum: mercury, PCBs, CFCs, lead, cadmium, tributyl tin, halogens, solvents, asbestos, fuel, radioactive materials, and oils and oily mixtures. The option in such a proceeding exists to avoid testing and to presume a certain material is hazardous due to presence of a likely contaminant if full sampling is deemed too costly. All

such presumptions and testing must be accomplished by licensed experts in the field to ensure occupational safety of all concerned and to ensure a credible examination is conducted. This must be undertaken *prior* to final voyage.

2.1.4.2 Waste oils, fuel and sewage: All waste oils, oily liquids, sewage and fuels must be completely removed from the ship and managed in accordance with MARPOL regulations and guidelines prior to any recycling taking place at a Green Ship Recycling Facility whether or not the facility exists in the territory of a Party to the MARPOL Convention.

2.1.4.3 Gas-Free Certificates: No Green Ship Recycling Facility may undertake any cutting or dismantling activity onboard a vessel until a ship has been tested for flammability and a Gas-Free for Hot Works certificate granted. This test, unlike the others mentioned above, must take place at the Green Ship Recycling Facility just prior to any cutting or dismantling taking place.

2.1.5 Environmentally Sound Management and Due Diligence

2.1.5.1 Downstream Environmentally Sound Management of Wastes/Materials: No Green Ship Recycling Facility can operate in a country without access to and use of appropriate national downstream disposal facilities to handle all known solid and hazardous wastes on board vessels including facilities for managing and disposing of asbestos, toxic metal paints, residual fuels and oils. In the case of materials/wastes containing PCBs and other persistent organic pollutants, these must not be landfilled or otherwise disposed of if found in concentrations above 50ppm. Rather, PCBs must be managed by technologies that destroy the PCB molecule with a total Destruction Efficiency (DE, not to be confused with DRE) of 99.9999 percent.

2.1.5.2 Environmental and Health Monitoring: Workplace worker and environmental monitoring must be conducted at least every year. This will include soil sampling, air sampling, blood and hair sampling and workplace dust sampling for heavy metals,

asbestos and PCBs. If problems are discovered, all efforts will be made to abate the problem and address the occupational health concern as a matter of urgency. All such information should be available to workers, trade unions, and officials at any time.

2.1.5.3 Community Support: No new Green Ship Recycling Facility can be established in an area without achieving broad based community support including from fishermen, other businesses, residents and other stakeholders.

2.1.5.4 Environmental Management System: Green Ship Recycling Facilities will, in their entirety, "create, implement, document, and maintain an ISO or similarly certified Environmental Management System, which will formally incorporate all requirements of this Green Ship Recycling Standard, as well as others.

2.1.5.5 Fire Fighting Equipment: Green Ship Recycling Facilities must possess their own fire fighting capacity to put out all types of fires on the ships and on the premises.

2.1.6 Labor Rights and Protections in Place

2.1.6.1 Worker's Rights: All workers employed at a Green Ship Recycling Facility shall have the right to assemble, form trade unions, bargain collectively with their employer, have access to medical and occupational health personnel as requested and shall be able to request and conduct such rights and business without fear of retribution or other prejudice.

2.1.6.2 Occupational Safety and Health Responsibility: Occupational safety and health and the protection of the working and living environment is the responsibility and duty of the employer at a Green Ship Recycling Facility. Green Ship Recycling Facility owners must exercise strong leadership and commitment for OSH activities exercised through the establishment of an OSH management system specifically designed for the Green Ship Recycling Facility (see ILO Guidelines). Owners of Green Ship

Recycling Facilities must maintain workplaces, equipment, tools and machinery safe and without risk to health. They must make arrangements for the identification and periodic assessment of the hazards and risks to safety and health, and implement appropriate preventive and protective measures required to prevent those hazards and risks, or to reduce them to the lowest reasonable and practicable level. These arrangements should be in conformity with the provisions of international and national laws and regulations and recommendations contained in the ILO Guidelines on shipbreaking and those arising from applicable international conventions, codes of practice or guidelines.

2.1.6.3 Personal Protective Equipment: Green Ship Recycling Facility owners must provide appropriate gloves, boots, uniforms, respirators, hardhats, and other protective equipment at the employer's expense to all workers and proper use of such equipment shall be enforced in accordance with the aforementioned guidelines.

2.1.6.4 Onsite / Offsite Medical and Emergency Facilities: Green Ship Recycling Facilities must possess emergency eye-wash, showers, and first aid equipment, and at all times of operation persons trained in such First Aid operations and equipment must be onsite. Hospitals capable of managing severe injury must be located within 15 kilometers of a Green Ship Recycling Facility with a means of rapid transport always available.

2.1.6.5 Lifting Equipment: A Green Ship Recycling Facility must have shipside cranes and lifting equipment to minimize injury and accidents to workers. Under no circumstances should objects weighing more than 50 kilograms be lifted by hand and workers should never be denied use of mechanical lifting equipment when it is desired. Under no circumstances should objects ever be dropped or should gravity be used for removing material from the ship. Cranes must be capable of lifting at least 500 kilogram objects and must be placed on a

solid, firm footing alongside the ship for the purposes of safe lifting and lowering of objects.

2.1.6.6 Emergency Access to Ship and Workers: A Green Ship

Recycling Facility must always be able to rapidly remove or administer first aid to persons working on a ship or respond to a fire or other emergency without delays. Mechanisms for lifting persons quickly from inside a ship must be in place at all times. Emergency response vehicles capable of moving along roads and highways at high speed must be able to approach within 25 meters of at least one side of a ship without delay on hard standing for heavy vehicles.

2.1.6.7 Training and Communications: Interactive safety and health training prior to full employment and a regular ongoing interactive OSH training program must be realized. Training must be consistent with and cover main issues found in the relevant guidelines including management of toxic materials and emergency response. Safety information must be made available by posting or other means in the workplace. All training and workplace postings must be made available in languages or other means to ensure understanding by the workers involved.

2.2 Requirements During Recycling

2.2.1 Environmentally and Occupationally Sound Management and Responsibility: All operations must be conducted at a minimum in accordance with the relevant guidelines listed in Annex II of this document and in accordance with all applicable local, national, and international law.

2.2.2 Operational Platform / Containment

2.2.2.1 No Beaching Operations: Under no circumstances can a Green Ship Recycling Operation take place on tidal beaches. This is unacceptable due to the impracticality/impossibility of a) providing access and platforms for mechanical lifting devices,

e.g. cranes, b) providing access by emergency response vehicles, and c) preventing oils, leaked residues, and particulate matter from falling onto the beach and marine environment in a retrievable manner.

2.2.2.2 Full Containment with Drydocks or Graving Docks: A Green Ship Recycling Facility currently utilizing dockside, slip, or floating working platforms will, by the year 2012, comply with the Basel Convention Guideline's requirement that "*impermeable floors wherever hazardous materials and wastes are handled*" be used, so that no ship cutting or recycling activities can take place without full containment for loss of liquids or particulate matter (e.g. oils, paint chips, or dust), and so that incidental or accidental releases of residues or emissions can be recovered and managed appropriately. For the purposes of satisfying this provision, no part of the ship itself can be considered as the necessary containment. In practice this will mean that over-water or over soil/sand recycling will not be considered acceptable, but only movement of the entire ship to an impermeable, fully contained and controllable floored area such as is provided by a dry or graving dock will be required. Drydock or Graving dock floors will be washed daily and waters and cleaning residues managed as potential hazardous wastewater. Before flooding, floors must be thoroughly cleaned.

2.2.2.3 Interim Transition from Floating Operations to Containment: However, due to the fact that ship recycling activities currently do not conform to such norms of hazardous waste management, until the year 2012, the following containment procedures can be practiced for dockside, or slip recycling. These transitional operations must involve the following: a) hull sealing and integrity testing to ensure that the hull will provide complete containment of operations inside the ship; b) secondary particulate containment provided by plastic tenting material and sealing of all pathways for particulate matter during paint removal, cutting and other operations likely to release particulate matter into the marine or natural

environment, c) secondary oily residue containment on the water provided by oil booms; d) proper and careful collection and management of materials contained by (b) and (c) above to avoid any spillage or releases.

2.2.3 Asbestos Remediation and Disposal: All forms of asbestos removed from vessels by a Green Ship Recycling Facility will be removed, isolated and managed as hazardous wastes under the conditions and in downstream disposal facilities as outlined by relevant guidelines (see Annex II of this document, and applicable ILO Conventions, whether or not a Green Ship Recycling Facility exists in the territory of a Party to these Conventions. Asbestos will likewise be managed in accordance with all applicable national and local laws and guidelines. Under no circumstances can asbestos in any form be allowed to be directed toward reuse or recycling operations or destinations but must be disposed of in a secure landfill designed for asbestos without possibility of airborne or other releases.

2.2.4 PCBs Remediation and Destruction: PCBs can be found in liquid form in transformers, capacitors, and fluorescent light ballasts. In solid form they are often found in gaskets, electronic cabling and wiring, insulation, pliable flooring and roofing material, and in paints. A Green Ship Recycling Facility will manage PCBs found in both liquid and solid matrices in any onboard materials found in concentrations greater than 50ppm, by removing and isolating such material and managing it as hazardous waste under the conditions and in facilities as described in the relevant guidelines (see Annex II). The removed PCBs will be subject to destruction technologies that destroy the PCB molecule with a total Destruction Efficiency (DE, not to be confused with DRE) of 99.9999 percent. In addition to meeting this requirement, PCBs will be managed in accordance with all applicable national and local laws and guidelines if additional or more strict than this standard's requirements. Under no circumstances can PCBs be allowed to be directed toward reuse or recycling operations or destinations.

- 2.2.5 Radioactive Devices:** Smoke detectors and all other equipment containing radioactive material must be removed, collected, and managed in a designated radioactive waste facility and not dumped in a municipal/solid waste landfill or elsewhere.
- 2.2.6 Mercury:** Mercury can be found in ship drainage areas from spills, in electronic switches and relays, and in binnacles, compasses, thermometers, barometers, and other instruments. It is also prevalent in fluorescent light bulbs of all kinds. Under no circumstances may mercury be handled or released to the environment. All mercury containing devices should be managed as hazardous waste and directed to a facility capable of safely recycling it utilizing retorts capable of 99.99% recovery. It is preferable that mercury be stored in safe monitored retrievable storage rather than sold in the marketplace.
- 2.2.7 ChloroFluoroCarbons (CFCs) / Freon Remediation and Disposal:** CFCs in refrigerants, fire extinguishers, etc. must be identified, safely removed and isolated. Under no circumstances should they be released to the atmosphere. Rather a licensed collector of CFCs should manage them in accordance with MARPOL and Montreal Protocol obligations and guidelines.
- 2.2.8 Harmful Paints and Plastics:** A Green Ship Recycling Facility will seek to test all paints and plastics for halogens and toxic metal content (e.g. lead, cadmium, tributyl tin) and remove such paints and plastics and have them managed appropriately. Paints and plastics containing hazardous levels of toxic metals will be managed as hazardous waste. Halogenated material must be landfilled in a secure, fully lined and monitored landfill and not burned or incinerated except as stipulated in 2.2.6 below. Steel and other metal material destined for recovery smelters that contain paints, coatings and plastics that in turn contain halogens, or toxic metals must only go to smelters with well maintained pollution control devices and high temperatures to prevent release of dioxins, toxic metals, and dangerous hydrocarbons. Most re-rolling mills do not possess such pollution control equipment.

2.2.9 Burning and Incineration: Under no circumstances will a Green Ship Recycling facility allow any of the ship material to be burned, except in permanent dedicated hazardous waste incinerators meeting a specification of 99.9999 destruction efficiency. This is due to the likelihood that burnable material will be treated with chemicals or includes additives of some kind that will create harmful emissions.

2.2.10 Thermal Cutting: A Green Ship Recycling Facility will ensure that thermal cutting, or other thermal operations or devices do not create toxic fume or smoke by use near or over all paints, plastics and other materials. Rather, cutting torch lines must be cleared of all paints manually or through other non-thermal techniques.

2.2.11 Toxic or Health Impairing Dusts: Operations involving grinding, sand blasting and cutting, etc. that create harmful dusts must be avoided at Green Ship Recycling Facilities. If this is not possible, appropriate respirators and masks must be employed to prevent inhalation and eye exposure.

2.2.12 Transport and Use of Downstream Waste Management Facilities: A Green Ship Recycling Facility will properly label, package and transport all hazardous wastes to ensure against releases, accidental or incidental, and in accordance with all relevant national regulations for such transport.

2.2.13 Downstream Due Diligence: Green Ship Recycling Facility owners must conduct due diligence for all downstream raw material and waste management / recycling, smelting, etc. facilities and brokers to be satisfied that they meet applicable standards above and best practices for their specific operations. All such facilities must be fully licensed and permitted to manage the wastes concerned.

Annex I: Non-exhaustive List of Relevant International and National Waste Trade Agreements

- Basel Convention
- European Waste Shipment Regulation
- OECD Recycling Agreement
- Waigani Treaty
- Izmir Protocol
- Bamako Convention
- Acuerdo Regional sobre Movimiento Transfronterizo de Desechos Peligrosos -- Centroamerica
- Basel Ban Amendment (Decision III/1 of the Basel Convention)
- The Asbestos Regulations (as amended) 1999 (United Kingdom)
- Toxics Substances Control Act (for PCBs import and export) (USA)

For the text of these agreements visit www.ban.org (library and main menu)

Annex II: Non-exhaustive List of Relevant Guidelines

- Basel Convention Technical guidelines for the environmentally sound management of the full and partial dismantling of ships (December 2002); <http://www.basel.int/ships/techguid.html>
- DK EPA (2007) Pocket Book Manual. Draft 2006 submitted to Basel Convention Secretariat. <http://www.basel.int/ships/docs/dpm050706.doc> and Annexes: <http://www.basel.int/ships/docs/dpm050706-apdx.pdf>
- ILO Safety and health in shipbreaking. Guidelines for Asian countries and Turkey (October 2003) <http://www.basel.int/ships/docs/02e.pdf>

- IMO guidelines on ship recycling (December 2003).
<http://www.basel.int/ships/docs/03e.doc>, and amendments:
<http://www.basel.int/ships/docs/04e.doc>
 - IMO: Principles of hotworks on all kind of ships
http://www.imo.org/includes/blastDataOnly.asp/data_id%3D7449/1084.pdf
 - US EPA: A Guide for Shipscrappers:
<http://www.basel.int/ships/docs/14e.pdf>
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Annex III: Non-Exhaustive List of Relevant ILO Conventions and Recommendations

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labour Convention, 1930 (No. 29)
- Abolition of Forced Labour Convention, 1957 (No. 105)
- Minimum Age Convention (No. 138) and Recommendation (No. 146), 1973
- Worst Forms of Child Labour Convention (No. 182) and Recommendation (No. 190), 1999
- Discrimination (Employment and Occupation) Convention (No. 111) and Recommendation (No. 111), 1958
- Equal Remuneration Convention (No. 100) and Recommendation (No. 90), 1951
- Radiation Protection Convention (No. 115) and Recommendation (No. 114), 1960
- Reduction of Hours of Work Recommendation, 1962 (No. 116)
- Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963

- Employment Injury Benefit Convention (No. 121) and Recommendation (No. 121), 1964
- Maximum Weight Convention (No. 127) and Recommendation (No. 128), 1967
- Workers' Representatives Convention, 1971 (No. 135)
- Benzene Convention (No. 136) and Recommendation (No. 144), 1971
- Occupational Cancer Convention (No. 139) and Recommendation (No. 147), 1974
- Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977
- Occupational Safety and Health (Dock Work) Convention (No. 152) and Recommendation (No. 160), 1979
- Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981
- Protocol of 2002 (recording and notification of occupational accidents and diseases) to the Occupational Safety and Health Convention, 1981 (No. 155)
- Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985
- Asbestos Convention (No. 162) and Recommendation (No. 172), 1986
- Chemicals Convention (No. 170) and Recommendation (No. 177), 1990
- Night Work Convention (No. 171) and Recommendation (No. 178), 1990
- Prevention of Major Industrial Accidents Convention (No. 174) and Recommendation (No. 181), 1993
- Maternity Protection Convention (No. 183) and Recommendation (No. 191), 2000
- List of Occupational Diseases Recommendation, 2002 (No. 194)