

## Preface

The main objectives of these Guidelines are to assist:

- .1 Governments in developing and enacting domestic laws which implement MARPOL Annex V;
- .2 shipowners, ship operators, ships' crews, cargo owners and equipment manufacturers in complying with requirements set forth in MARPOL Annex V and relevant domestic laws; and
- .3 port and terminal operators in assessing the need for, and providing, adequate reception facilities for garbage generated on all types of ships. In the interest of uniformity, governments are requested to refer to these Guidelines and related guidance\* developed by the Organization when developing and enforcing appropriate national regulations.

## 1 Introduction

1.1 The revised MARPOL Annex V, which entered into force on 1 January 2013, prohibits the discharge of all types of garbage into the sea unless explicitly permitted under the Annex. These Guidelines have been developed taking into account the regulations set forth in MARPOL Annex V, as amended and are divided into the following six sections, providing a general framework based on which governments can formulate programmes:

- .1 Introduction;
- .2 Garbage management;
- .3 Management of cargo residues of solid bulk cargoes;
- .4 Training, education and information;
- .5 Port reception facilities for garbage; and
- .6 Enhancement of compliance with MARPOL Annex V.

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\* Refer to the *Port Reception Facilities – How to do it*, 2016 Edition; Guidelines for ensuring the adequacy of port waste reception facilities (resolution MEPC.83(44)); and Consolidated guidance for port reception facility providers and users (MEPC.1/Circ.834).

**1.2** Under the revised MARPOL Annex V, discharge of all garbage into the sea is prohibited, except as specifically permitted in regulations 3, 4, 5 and 6 of the Annex. Annex V reverses the historical presumption that garbage may be discharged into the sea based on the nature of the garbage and defined distances from shore. Regulation 7 provides limited exceptions to these regulations in emergency and non-routine situations. Generally, discharge is restricted to food wastes, identified cargo residues, animal carcasses, identified cleaning agents and additives, and cargo residues entrained in washwater which are not harmful to the marine environment. It is recommended that ships use port reception facilities as the primary means of discharge for all garbage.

**1.3** Recognizing that MARPOL Annex V regulations continue to restrict the discharge of garbage into the sea and require garbage management for ships, and that garbage management technology continues to evolve, it is recommended that governments and the Organization continue to gather information and review these Guidelines periodically.

**1.4** Regulation 8 of MARPOL Annex V provides that governments must ensure the provision of adequate port reception facilities for garbage from ships and should facilitate and promote their use. Section 5 provides guidelines for these facilities.

**1.5** MARPOL Annex V provides definitions for terms used throughout these Guidelines. Section 1.6 includes relevant aspects of these definitions, followed by other definitions which are useful for these Guidelines.

## **1.6 Definitions**

**1.6.1** *Dishwater* means the residue from the manual or automatic washing of dishes and cooking utensils which have been pre-cleaned to the extent that any food particles adhering to them would not normally interfere with the operation of automatic dishwashers.

**1.6.2** *E-waste* means electrical and electronic equipment used for the normal operation of the ship or in the accommodation spaces, including all components, subassemblies and consumables, which are part of the equipment at the time of discarding, with the presence of material potentially hazardous to human health and/or the environment.

**1.6.3** *Grey water* means drainage from dishwater, shower, laundry, bath and washbasin drains. It does not include drainage from toilets, urinals, hospitals and animal spaces, as defined in regulation 1.3 of MARPOL

Annex IV (sewage) and drainage from cargo spaces. Grey water is not considered garbage in the context of MARPOL Annex V.

**1.6.4** *Recycling* means the activity of segregating and recovering components and materials for reprocessing.

**1.6.5** *Reuse* means the activity of recovering components and materials for further use without reprocessing.

## **1.7 Application**

**1.7.1** This section provides clarification as to what should and should not be considered as garbage under MARPOL Annex V.

**1.7.2** Ash and clinkers from shipboard incinerators and coal-burning boilers should be considered as operational wastes within the meaning of regulation 1.12 of MARPOL Annex V, and therefore are included in the term “garbage”, within the meaning of regulation 1.9 of MARPOL Annex V.

**1.7.3** The definition of “operational wastes” (regulation 1.12 of MARPOL Annex V) excludes grey water, bilge water and other similar discharges essential to the operation of a ship. “Other similar discharges” essential to the operation of a ship include, but are not limited to, the following:

- .1 boiler/economizer blowdown;
- .2 boat engine wet exhaust;
- .3 chain locker effluent;
- .4 controllable pitch propeller and thruster hydraulic fluid and other oil to sea interfaces (e.g. thruster bearings, stabilizers, rudder bearings, etc.);
- .5 distillation/reverse osmosis brine;
- .6 elevator pit effluent;
- .7 firemain systems water;
- .8 freshwater lay-up;
- .9 gas turbine washwater;
- .10 motor gasoline and compensating discharge;
- .11 machinery wastewater;
- .12 pool, spa water and recreational waters;

.13 sonar dome discharge; and

.14 welldeck discharges.

**1.7.4** While cleaning agents and additives contained in hold washwater and deck and external surface washwater are considered “operational wastes” and thus “garbage” under MARPOL Annex V, these cleaning agents and additives may be discharged into the sea so long as they are not harmful to the marine environment.

**1.7.5** A cleaning agent or additive is considered not harmful to the marine environment if it:

.1 is not a “harmful substance” in accordance with the criteria in MARPOL Annex III; and

.2 does not contain any components which are known to be carcinogenic, mutagenic or reprotoxic (CMR).

**1.7.6** The ship’s record should contain evidence provided by the producer of the cleaning agent or additive that the product meets the criteria for not being harmful to the marine environment. To provide an assurance of compliance, a dated and signed statement to this effect from the product supplier would be adequate for the purposes of a ship’s record. This might form part of a Safety Data Sheet or be a stand-alone document, but this should be left to the discretion of the producer concerned.

**1.7.7** Releasing small quantities of food into the sea for the specific purpose of fish feeding in connection with fishing or tourist operations should not be considered as discharge of garbage in the context of MARPOL Annex V.

**1.7.8** Fishing gear that is released into the water with the intention of later retrieval, such as fish aggregating devices (FADs), traps and static nets, should not be considered garbage or accidental loss in the context of MARPOL Annex V.

## 2 Garbage management

### 2.1 Waste minimization

**2.1.1** All shipowners and operators should minimize taking onboard material that could become garbage. Ship-specific garbage minimization procedures should be included in the Garbage Management Plan. It is recommended that manufacturers, cargo owners, ports and terminals,

shipowners and operators and governments consider the management of garbage associated with ships’ supplies, provisions, and cargoes as needed to minimize the generation of garbage in all forms.

**2.1.2** When making supply and provisioning arrangements, shipowners and operators, where possible with the ships’ suppliers, should consider the products being procured in terms of the garbage they will generate. Options that should be considered to decrease the amount of such garbage include the following:

.1 using supplies that come in bulk packaging, taking into account factors such as adequate shelf-life (once a container is open) to avoid increasing garbage associated with such products;

.2 using supplies that come in reusable or recyclable packaging and containers; avoiding the use of disposable cups, utensils, dishes, towels and rags and other convenience items whenever possible; and

.3 avoiding supplies that are packaged in plastic, unless a reusable or recyclable plastic is used.

**2.1.3** When considering selection of materials for stowage and securing of cargo or protection of cargo from the weather, shipowners and operators should consider how much garbage such materials will generate. Options that should be considered to decrease the amount of such garbage include the following:

.1 using permanent reusable coverings for cargo protection instead of disposable or recyclable plastic sheeting;

.2 using stowage systems and methods that reuse dunnage, shoring, lining and packing materials; and

.3 discharging to port reception facilities the dunnage, lining and packaging materials generated in port during cargo activities as their discharge into the sea is not permitted.

**2.1.4** Governments are encouraged to undertake research and technology development to minimize potential garbage and its impacts on the marine environment. Suggested areas for such study are listed below:

.1 development of recycling technology and systems for all types of materials that may be returned to shore as garbage; and

- .2 development of technology for use of biodegradable materials to replace current plastic products as appropriate. In connection with this, governments should also study the impacts on the environment of the products from degradation of such new materials.

## 2.2 Fishing gear

**2.2.1** Lost fishing gear may harm the marine environment or create a navigation hazard. Fishing vessel operators are required to record the discharge or loss of fishing gear in the Garbage Record Book or the ship's official log-book as specified in regulations 7.1 and 10.3.6 of MARPOL Annex V.

**2.2.2** Fishing vessel operators are further required to report the accidental loss or discharge of fishing gear which poses a significant threat to the marine environment and navigation. Reports should be made to the flag State, and where appropriate, the coastal State in whose jurisdiction the loss of the fishing gear occurred, as specified in regulation 10.6 of MARPOL Annex V:

- .1 the accidental loss or discharge of fishing gear which is required to be reported by regulation 10.6 of MARPOL Annex V should be determined specifically by the government. For such determination, the government is encouraged to consider various factors including: (1) the amount of the gear lost or discharged and (2) the conditions of the marine environment where it was lost or discharged. Comprehensive consideration is needed on the characteristics of the gear that was lost, including types, size (weight and/or length), quantity, material (especially, synthetic/plastic or not), buoyancy. In addition, governments should consider the impact of the fishing gear in different locations in order to assess whether the lost gear represents a significant threat to the marine environment or navigation, taking into account the vulnerability of habitat and protected species to gear interactions. Governments are encouraged to report to the Organization measures taken to address this issue, with a view to promoting information sharing and opinion exchange among governments and relevant international organizations. Further, governments are encouraged to report to the Organization progress made in implementing these measures, including summaries of where gear was lost and, if applicable, actions taken to address the gear loss;

- .2 examples of lost or abandoned fishing gear which could be considered to pose a significant threat to the marine environment include whole or nearly whole large fishing gear or other large portions of gear. In determining the threat to the marine environment, governments should give careful consideration to the impact of gear in sensitive areas, such as coral reefs, and in areas where interactions would have higher risks of detrimental impacts, such as foraging or breeding areas for protected species;
- .3 governments are encouraged to develop communication frameworks to enable the recording and sharing of information on fishing gear loss where necessary in order to reduce loss and facilitate recovery of fishing gear. Governments are further encouraged to develop frameworks to assist fishing vessels in reporting the loss of gear to the flag State and to a coastal State. Such frameworks should take into consideration implementation challenges in small scale and artisanal fisheries and recreational operations;
- .4 fishing industry, relevant international organizations and governments are encouraged to undertake such research, technology development, information sharing and management measures as may be needed to minimize the probability of loss, and maximize the probability of retrieval of fishing gear from the sea; and
- .5 governments should encourage vessel operators to implement appropriate onboard storage and handling of fishing gear, and should also consider relevant guidance issued by the Food and Agriculture Organization of the United Nations (FAO) and the International Maritime Organization (IMO).

## 2.3 Shipboard garbage handling (collection, processing, storage, discharge)

**2.3.1** Regulation 3 of MARPOL Annex V provides that the discharge of garbage into the sea is prohibited, with limited exceptions, as summarized in table 1. Under certain conditions discharge into the sea of food wastes, animal carcasses, cleaning agents and additives contained in hold washwater, deck and external surface washwater and cargo residues which are not considered to be harmful to the marine environment is permitted.

**Table 1 – Summary of restrictions to the discharge of garbage into the sea under regulations 4, 5, 6 and 14 of MARPOL Annex V and chapter 5 of part II-A of the Polar Code**

(Note: Table 1 is intended as a summary reference. The provisions in MARPOL Annex V and the Polar Code, not table 1, prevail.)

Garbage type <sup>1</sup>	All ships except platforms <sup>4</sup>		Regulation 5 Offshore platforms located more than 12 nautical miles from nearest land and ships when alongside or within 500 metres of such platforms <sup>4</sup>
	Regulation 4 Outside special areas and Arctic waters (Distances are from the nearest land)	Regulation 6 Within special areas and Arctic waters (Distances are from nearest land, nearest ice-shelf or nearest fast ice)	
Food waste comminuted or ground <sup>2</sup>	≥ 3 nautical miles, <i>en route</i> and as far as practicable	≥ 12 nautical miles, <i>en route</i> and as far as practicable <sup>3</sup>	Discharge permitted
Food waste not comminuted or ground	≥ 12 nautical miles, <i>en route</i> and as far as practicable	<b>Discharge prohibited</b>	<b>Discharge prohibited</b>
Cargo residues <sup>5, 6</sup> not contained in washwater	≥ 12 nautical miles, <i>en route</i> and as far as practicable	<b>Discharge prohibited</b>	<b>Discharge prohibited</b>
Cargo residues <sup>5, 6</sup> contained in washwater		≥ 12 nautical miles, <i>en route</i> and as far as practicable (subject to conditions in regulation 6.1.2 and in paragraph 5.2.1.5 of part II-A of the Polar Code)	

Garbage type <sup>1</sup>	All ships except platforms <sup>4</sup>		Regulation 5 Offshore platforms located more than 12 nautical miles from nearest land and ships when alongside or within 500 metres of such platforms <sup>4</sup>
	Regulation 4 Outside special areas and Arctic waters (Distances are from the nearest land)	Regulation 6 Within special areas and Arctic waters (Distances are from nearest land, nearest ice-shelf or nearest fast ice)	
Cleaning agents and additives <sup>6</sup> contained in cargo hold washwater	Discharge permitted	≥ 12 nautical miles, <i>en route</i> and as far as practicable (subject to conditions in regulation 6.1.2 and paragraph 5.2.1.5 of part II-A of the Polar Code)	<b>Discharge prohibited</b>
Cleaning agents and additives <sup>6</sup> in deck and external surfaces washwater		Discharge permitted	
Animal Carcasses (should be split or otherwise treated to ensure the carcasses will sink immediately)	Must be <i>en route</i> and as far from the nearest land as possible. Should be > 100 nautical miles and maximum water depth	<b>Discharge prohibited</b>	<b>Discharge prohibited</b>
All other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	<b>Discharge prohibited</b>	<b>Discharge prohibited</b>	<b>Discharge prohibited</b>

**Notes to Table 1**

- <sup>1</sup> When garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.
- <sup>2</sup> Comminuted or ground food wastes must be able to pass through a screen with mesh no larger than 25 millimetres.
- <sup>3</sup> The discharge of introduced avian products in the Antarctic area is not permitted unless incinerated, autoclaved or otherwise treated to be made sterile. In polar waters, discharge shall be made as far as practicable from areas of ice concentration exceeding 1/10; in any case food wastes shall not be discharged onto the ice.
- <sup>4</sup> Offshore platforms located 12 nautical miles from nearest land and associated ships include all fixed or floating platforms engaged in exploration or exploitation or associated processing of seabed mineral resources, and all ships alongside or within 500 metres of such platforms.
- <sup>5</sup> Cargo residues means only those cargo residues that cannot be recovered using commonly available methods for unloading.
- <sup>6</sup> These substances must not be harmful to the marine environment.

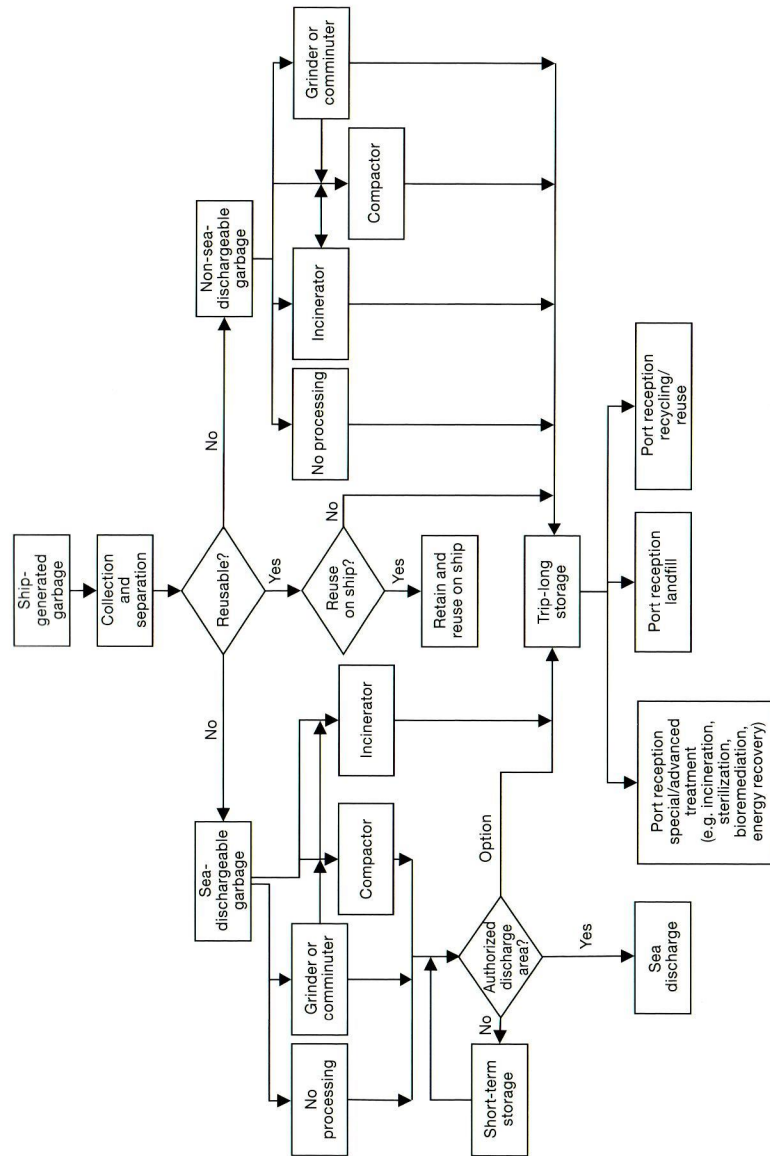
**2.3.2** Compliance with MARPOL Annex V involves personnel, equipment and procedures for collecting, sorting, processing, storing, recycling, reusing and discharging garbage. Economic and procedural considerations associated with these activities include storage space requirements, sanitation, equipment and personnel costs and in port garbage service charges.

**2.3.3** Compliance with the provisions of MARPOL Annex V involves careful planning by the ship's owner and operator and proper execution by crew members as well as other seafarers. The most appropriate procedures for handling and storing garbage on board ships may vary depending on factors such as the type and size of the ship, the area of operation (e.g. special area, distance from nearest land, ice-shelf or fast ice), shipboard garbage processing equipment and storage space, number of crew or passengers, duration of voyage, and regulations and reception facilities at ports of call. However, in view of the cost involved with the different garbage handling options, it is economically advantageous to first, limit the amount of material that may become garbage from being brought on board the ship and second, separate garbage eligible for discharge into the sea from other garbage that may not be discharged into the sea. Proper management of containers and packaging coming on board and proper handling and storage can minimize shipboard storage space requirements and enable efficient transfer of retained garbage to port reception facilities for proper handling (i.e. recycling, reuse) or land-based disposal.

**2.3.4** Every ship of 100 gross tonnage and above, every ship certified to carry 15 or more persons, and fixed and floating platforms are required to carry and implement a garbage management plan that specifies procedures to be followed to ensure proper and efficient handling and storage of garbage. A garbage management plan\* should be developed that can be incorporated in crew and ship operating manuals. Such manuals should identify crew responsibilities (including an Environmental Control Officer) and procedures for all aspects of handling and storing garbage on board the ship. Procedures for handling ship-generated garbage are divided into four phases: collection, processing, storage and discharge. A generalized garbage management plan for handling and storing ship-generated garbage is presented in table 2. Specific procedures for each phase are discussed below.

\* Garbage management plans are mandatory on certain ships in accordance with regulation 10 of MARPOL Annex V (see page 61).

Table 2 – Options for shipboard handling and discharge of garbage



## 2.4 Collection

2.4.1 Procedures for collecting garbage generated on board should be based on the consideration of what is permitted and what is not permitted to be discharged into the sea while *en route*, and whether a particular garbage type can be discharged to port facilities for recycling or reuse. The details of these procedures should be written in the garbage management plan.

2.4.2 To reduce or avoid the need for sorting after collection and to facilitate recycling, it is recommended that distinctively marked garbage receptacles be provided on board the ship to receive garbage as it is generated. Receptacles on board can be in the form of drums, metal bins, cans, container bags or wheelie bins. Any receptacles on deck areas, poop decks or areas exposed to the weather should be secured on the ship and have lids that are tight and securely fixed. All garbage receptacles should be secured to prevent loss, spillage, or loss of any garbage that is deposited in the receptacles. Receptacles should be clearly marked and distinguishable by graphics, shape, size or location. Receptacles should be placed in appropriate spaces throughout the ship (e.g. the engine-room, mess deck, wardroom, galley and other living or working spaces) and all crew members and passengers should be advised of what garbage should and should not be placed in them.

2.4.3 The recommended garbage types that should be separated are:

- .1 non-recyclable plastics and plastics mixed with non-plastic garbage;
- .2 rags;
- .3 recyclable material:
  - .1 cooking oil;
  - .2 glass;
  - .3 aluminium cans;
  - .4 paper, cardboard, corrugated board;
  - .5 wood;
  - .6 metal; and
  - .7 plastics; (including styrofoam or other similar plastic material);
- .4 E-waste generated on board (e.g. electronic cards, gadgets, instruments, equipment, computers, printer cartridges, etc.); and
- .5 garbage that might present a hazard to the ship or crew (e.g. oily rags, light bulbs, acids, chemicals, batteries, etc.).

**2.4.4** Crew responsibilities should be assigned for collecting or emptying these receptacles and taking the garbage to the appropriate processing or storage location. Use of such a system facilitates subsequent shipboard processing and minimizes the amount of garbage which must be stored on board ship for return to port.

#### *Plastics and plastics mixed with non-plastic garbage*

**2.4.5** Plastics are used for a variety of marine purposes including, but not limited to, packaging (vapour-proof barriers, bottles, containers, liners, bags, cargo wrapping material, foam cushioning material, etc.); ship construction (fibreglass and laminated structures, siding, piping, insulation, flooring, carpets, fabrics, paints and finishes, adhesives, electrical and electronic components, etc.); disposable eating utensils (styrofoam plates, bowls, food containers, cups, etc.); bags; sheeting; floats; fishing nets; fishing lines; strapping bands; wire rope with synthetic fibre sheaths; combination wire rope; rope; line; sails; and many other manufactured plastic items.

**2.4.6** Regulation 3.2 of MARPOL Annex V prohibits the discharge of all plastics into the sea. When plastic is mixed with other garbage, the mixture must be treated as if it were all plastic. The most stringent procedures for the handling and discharge should be followed taking into account the applicable provisions of the garbage management plan.

#### *Food wastes*

**2.4.7** Some governments have regulations for controlling human, plant and animal diseases that may be carried by foreign food wastes and materials that have been associated with them (e.g. food packing and disposable eating utensils, etc.). These regulations may require incinerating, sterilizing, double bagging or other special treatment of garbage to destroy possible pest and disease organisms. This type of garbage should be kept separate from other garbage and preferably retained for discharge at port reception facilities in accordance with the laws of the receiving country. Governments are reminded of their obligation to ensure the provision of adequate reception facilities. Precautions should be taken to ensure that plastics contaminated by food wastes (e.g. plastic food wrappers) are not discharged into the sea with other food wastes.

#### *Synthetic fishing net and line scraps*

**2.4.8** As regulation 3.2 of MARPOL Annex V prohibits the discharge into the sea of synthetic fishing nets and line scraps generated by the repair or operation of fishing gear, these items should be collected in a manner that avoids their loss overboard. Such material may be incinerated, compacted

or stored along with other plastics or it may be preferable to keep it separate from other types of garbage if it has strong odour or is present in great volume. Unless such garbage is appropriately incinerated, the atmospheric incineration products could be toxic. Onboard incineration should follow regulation 16 of MARPOL Annex VI.

#### *Recovery of garbage at sea*

**2.4.9** Seafarers are encouraged to recover persistent garbage from the sea during routine operations as opportunities arise and prudent practice permits and to retain the material for discharge to port reception facilities.

### **2.5 Processing**

**2.5.1** Depending on factors such as the type of ship, area of operation, number of crew or passengers, etc., ships may be equipped with incinerators,\* compactors, comminuters or other devices for shipboard garbage processing (see sections 2.8 to 2.11). Appropriate members of the crew should be trained and assigned responsibility for operating this equipment on a schedule commensurate with ship needs. In selecting appropriate processing procedures, the following should be considered.

**2.5.2** Use of compactors, incinerators, comminuters and other such devices has a number of advantages, such as reducing shipboard space requirements for storing garbage and making it easier to discharge garbage at port reception facilities.

**2.5.3** It should be noted that special rules on incineration under domestic law may apply in some ports and may exist in some special areas. Incineration of hazardous materials (e.g. scraped paint, impregnated wood) and certain types of plastics (e.g. PVC-based plastics or other plastics containing hazardous chemicals) calls for special precaution due to the potential environmental and health effects from combustion of by-products. The problems of combustion of by-products are discussed in 2.11.3.

**2.5.4** Ships operating primarily in special areas, Arctic waters or within 3 nm from the nearest land, ice-shelf or fast ice are greatly restricted in what they can discharge. These ships should choose between storage of either compacted or uncompacted material for discharging at port reception facilities or incineration with retention of ash and clinkers. The type of ship and the expected volume and type of garbage generated determine the suitability of compaction, incineration or storage options.

\* Refer to the 2014 Standard specification for shipboard incinerators (resolution MEPC.244(66)).



## 2.6 Storage

Garbage collected throughout the ship should be delivered to designated processing or storage locations. Garbage that must be returned to port for discharge at port reception facilities may require storage until arrangements can be made to discharge it ashore for appropriate processing. In all cases, garbage should be stored in a manner which avoids health and safety hazards. The following points should be considered when selecting procedures for storing garbage:

- .1 sufficient storage space and equipment (e.g. cans, drums, bags or other containers) should be provided. Where storage space is limited, ship operators are encouraged to consider the installation of compactors or incinerators. To the extent possible, all processed and unprocessed garbage stored for any length of time should be in tight, securely covered containers in order to prevent the unintentional discharge of stored garbage;
- .2 food wastes and other garbage to be returned to port and which may carry diseases or pests should be stored in tightly covered containers and be kept separate from garbage which does not contain such food wastes. Quarantine arrangements in some countries may require double bagging of this type of waste. Both types of garbage should be stored in separate clearly marked containers to avoid incorrect discharge and facilitate proper handling and treatment on land; and
- .3 cleaning and disinfecting are both preventative and remedial pest control methods that should be applied regularly in garbage storage areas.

## 2.7 Discharge

Although discharge into the sea of limited types of garbage is permitted under MARPOL Annex V, discharge of garbage to port reception facilities should be given primary consideration. When discharging garbage, the following points should be considered:

- .1 regulations 4, 5, and 6 of MARPOL Annex V and chapter 5 of part II-A of the Polar Code, summarized in table 1, set forth the requirements for garbage permitted to be discharged into the sea. In general the discharge shall take place when the ship is *en route* and as far as practicable from the nearest land, ice shelf or fast ice. Attempts should be made to spread the discharge over as wide an area as possible and in deep

water (50 m or more). Prevailing currents and tidal movements should be taken into consideration when discharging into the sea is permitted; and

- .2 to ensure timely transfer of large quantities of ship-generated garbage to port reception facilities, it is essential for shipowners, operators or their agents to make arrangements well in advance for garbage reception. At the same time, discharge needs should be identified in order to make arrangements for garbage requiring special handling or other necessary arrangements. Advice should be provided to the port of the type of garbage to be discharged and whether it is separated and the estimated amounts. The port may have special discharge requirements for food wastes and related garbage which may carry certain disease or pest organisms, dunnage, batteries, medicines, outdated pyrotechnics or unusually large, heavy or odorous derelict fishing gear, etc.

## 2.8 Shipboard equipment for processing garbage

The choice of options\* for garbage processing depends largely upon personnel limitations, generation rate, capacity, ship configuration, voyage route and availability of port reception facilities. The type of equipment available for shipboard garbage handling includes incinerators, compactors, comminuters and their associated hardware.

## 2.9 Grinding or comminution

**2.9.1** The discharge of comminuted food wastes may be permitted under regulations 4.1.1 and 6.1.1 of MARPOL Annex V or paragraph 5.2.1 of part II-A of the Polar Code whilst the ship is *en route*. Such comminuted or ground food wastes must be capable of passing through a screen with openings no greater than 25 millimetres.

**2.9.2** A wide variety of food waste grinders is available on the market and most modern ships' galleys have the equipment needed to produce a slurry of food particles and water that washes easily through the required 25 millimetres screen. Output ranges from 10 to 250 litres per minute. The discharge from shipboard comminuters should be directed into an appropriately constructed holding tank when the ship is operating within an area where discharge is prohibited.

\* Reference may also be made to other technical guidance such as, ISO/CD21070: *Ships and marine technology – Marine environment protection – Management and handling of shipboard garbage.*

**2.9.3** Size reduction of certain other garbage items can be achieved by shredding or crushing and machines for carrying out this process are available for use on board ships.

**2.9.4** Information on the development, advantages and use of comminuters for processing food waste aboard ships should be forwarded to the Organization for sharing between interested parties.

**2.9.5** Outside special areas and Arctic waters, ships operating primarily beyond 3 nautical miles from the nearest land are encouraged to install and use comminuters to grind food wastes to a particle size capable of passing through a screen with openings no larger than 25 millimetres. Regulation 4 of MARPOL Annex V requires comminuting or grinding food wastes if the food wastes are to be discharged between three and 12 nautical miles from the nearest land. Although unprocessed food wastes may be discharged beyond 12 nautical miles, it is recommended that comminuters be used as they hasten assimilation into the marine environment. Because food wastes comminuted with plastics cannot be discharged into the sea, all plastic materials need to be removed before food wastes are placed into a comminuter or grinder.

**2.9.6** When operating inside a special area or Arctic waters, regulation 6 of MARPOL Annex V and chapter 5 of part II-A of the Polar Code require all food wastes to be comminuted or ground prior to discharge into the sea. All discharges are to be as far as practicable and not less than 12 nautical miles from the nearest land, ice shelf or fast ice. Food wastes shall not be discharged onto the ice.

**2.10 Compaction**

Table 3 shows compaction options for various types of garbage.

**2.10.1** Most garbage can be compacted to some degree; the exceptions include unground plastics, fibre and paperboard, bulky cargo containers and thick metal items. Pressurized containers should not be compacted or shredded without the use of specialized equipment designed for this purpose because they present an explosion hazard in standard compactors.

**2.10.2** Compaction reduces the volume of garbage. In most cases, the output from a compactor is a block of material which facilitates the shipboard storage of garbage and its discharging in a port facility. It should be taken into account that the output from a compactor might be subject to quarantine, sanitary or health requirements or other requirements from the port reception facilities and advice from local authorities should be sought on any standards or requirements which are additional to those set by the Organization.

**Table 3 – Compaction options for shipboard-generated garbage**

Examples of garbage	Special handling by ship's personnel before compaction	Compaction characteristics			Onboard storage space
		Rate of alteration	Retention of compacted form	Density of compacted form	
Metal, food and beverage containers, glass, small wood pieces	None	Very rapid	Almost 100%	High	Minimum
Comminuted plastics, fibre and paperboard	Minor – reduce material to size for feed, minimal manual labour	Rapid	Approximately 80%	Medium	Minimum
Small metal drums,* uncomminuted cargo packing, large pieces of wood	Moderate – longer manual labour time required to size material for feed	Slow	Approximately 50%	Relatively low	Moderate
Uncomminuted plastics	Major – very long manual labour time to size material for feed; usually impractical	Very slow	Less than 10%	Very low	Maximum
Bulky metal cargo containers, thick metal items	Impractical for shipboard compaction; not feasible	Not applicable	Not applicable	Not applicable	Maximum

\* Small and large drums can be compacted very easily with the proper device – a large number of these devices have been designed for remote locations, and therefore they are small and easy to operate with excellent results. It should be noted that the compaction of drums is probably restricted to larger vessels, due to lack of space on smaller (fishing) vessels.

**2.10.3** Compactors have options including sanitizing, deodorizing, adjustable compaction ratios, bagging in plastic or paper, boxing in cardboard (with or without plastic or wax paper lining), baling, etc. Compacted materials should be stored appropriately. While metal and plastic bales can get wet, paper and cardboard bales should be kept dry.

**2.10.4** If grinding machines are used prior to compaction, the compaction ratio can be increased and the storage space decreased. Careful investigation of the appropriate compaction machine should be undertaken, based on the type and volume of material that will be compacted, as not all compactors require grinding. Compaction is just one step in the solid waste management scheme and the shipowner/operator should ensure all phases of garbage management are described in their Garbage Management Plan. Proper care should be taken when handling and storing binder wrap to prevent it from accidentally entering the marine environment.

**2.10.5** A compactor should be installed in a compartment with adequate room for operating and maintaining the unit and storing garbage to be processed. The compartment should be located adjacent to the areas of food processing and commissary store-rooms. If not already required by regulation, it is recommended that the space should have freshwater wash down service, coamings, deck drains, adequate ventilation and hand or automatic fixed fire-fighting equipment.

**2.10.6** Information on the development and use of shipboard compactors should be forwarded to the Organization for sharing between interested parties.

## **2.11 Incineration**

**2.11.1** Ash and clinkers from shipboard incinerators should be considered as operational waste and, therefore, as garbage that is not eligible for discharge into the sea.

**2.11.2** Incineration conducted in a shipboard incinerator can significantly reduce the need to store garbage on board the ship. Shipboard incinerators should be designed, constructed, operated and maintained in accordance with the 2014 Standard specification for shipboard incinerators (resolution MEPC.244(66), as amended). MARPOL Annex VI requires shipboard incinerators installed after 1 January 2000 to be type-approved and meeting specific air pollution criteria. Incinerators should only be used to incinerate materials that are specified by the incinerator manufacturer.

**2.11.3** In general, shipboard incineration should not be undertaken when the ship is in port or at an offshore terminal. Some ports may have domestic laws that specify additional air emission restrictions, particularly those near high population areas. The use of a shipboard incinerator may require permission from the port authority concerned.

**2.11.4** Table 4 presents options for incineration of garbage and includes considerations for special handling by ship's personnel, combustibility, reduction in volume, residual materials, exhaust, and onboard storage space. Most garbage is amenable to incineration, with the exception of metal and glass.

**2.11.5** Some of the disadvantages of incinerators may include the possible hazardous nature of the ash or vapour, dirty operation, excessive labour required for charging, stoking and ash removal. Some incinerators may not be able to meet air pollution regulations imposed in some ports and harbours or by flag and coastal States when such matters are subject to their jurisdiction. Some of these disadvantages can be remedied by automatic equipment for charging and stoking, however, the additional equipment to perform automatic functions will require more installation space.

**2.11.6** The incineration of garbage that contains a large amount of plastic involves very specific incinerator settings such as higher oxygen injection and higher temperatures (850 to 1,200°C). If these special conditions are not met, depending on the type of plastic and conditions of combustion, some toxic gases can be generated in the exhaust stream, including vaporized hydrochloric (HCl) and hydrocyanic (HCN) acids. These and other intermediary products of combustion of waste containing plastics are toxic to humans and marine life.

**2.11.7** Onboard incineration of garbage may reduce the volume of garbage subject to quarantine requirements in some countries. However, incinerator ash may still be subject to local quarantine, sanitary or health requirements. Advice should be sought from local authorities regarding requirements additional to MARPOL. For example, higher temperatures and more complete combustion may be required to effectively destroy organisms that present a risk.

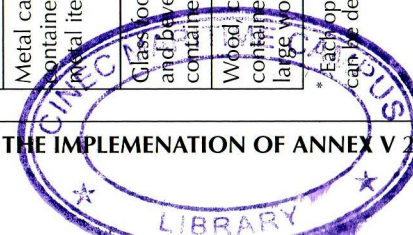
**2.11.8** Information on the development and advantages on the use of shipboard incinerator systems should be forwarded to the Organization for sharing between interested parties.

**Table 4 – Incineration options for shipboard-generated garbage**

Examples of garbage	Special handling by ship's personnel* before incineration	Incineration characteristics			Onboard storage space
		Combustibility	Reduction of volume	Residual	
Paper packing, food and beverage containers	Minor – easy to feed into hopper	High	Over 95%	Powder ash	Possibly smoky and not hazardous Minimum
Fibre and paperboard	Minor – reduce material to size for feed, minimum manual labour	High	Over 95%	Powder ash	Possibly smoky and not hazardous Minimum
Plastics packaging, food and beverage containers, etc.	Minor – easy to feed into hopper	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design Minimum
Plastics sheeting, netting, rope and bulk material.	Moderate – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design Minimum
Rubber hoses and bulk pieces	Major – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design Minimum

Examples of garbage	Special handling by ship's personnel* before incineration	Incineration characteristics			Onboard storage space
		Combustibility	Reduction of volume	Residual	
Metal food and beverage containers, etc.	Minor – easy to feed into hopper	Low	Less 10%	Slag	Possibly smoky and not hazardous Moderate
Metal cargo, bulky containers, thick metal items	Major – manual labour time to size reduction (not easily incinerated)	Very low	Less 5%	Large metal fragments and slag	Possibly smoky and not hazardous Maximum
Glass food and beverage containers, etc.	Minor – easy to feed into hopper	Low	Less 10%	Slag	Possibly smoky and not hazardous Moderate
Wood cargo containers and large wood scraps	Moderate – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous Minimum

\* Each operator of the onboard garbage incinerator should be trained and familiar in the use of the equipment and the types of garbage that can be destroyed in the incinerator.



## 2.12 Treatment of animal carcasses

**2.12.1** Only fit and healthy animals should be presented for loading as cargo and managed in accordance with international standards for the transport of animals at sea.\* The master of the ship is expected to have responsibility for shipboard livestock operational issues, animal health and welfare, and conditions for the control and reporting of animal mortality on board.

**2.12.2** Ships carrying live animal cargo consignments are expected to have animals dying during a voyage. These mortalities accrue gradually over the voyage and are dependent on various factors including age and type of animal species, facilities on board the ship and local climatic conditions. The most common mortality causes stem from enteritis, refusal to feed, injury, exhaustion or illness not evident prior to loading. The mortality numbers are generally low and are operational issues to be controlled as part of cargo management practice. These mortalities are considered to be generated during the normal operation of the ship and liable to be discharged continually or periodically and therefore subject to MARPOL Annex V regulations.

**2.12.3** As part of normal livestock ship management procedures, regular inspections (day and night) are recommended to ensure the health and welfare of the animals. It is recommended that these inspections include shipboard recording, on a daily basis, of the number of animals that have died or have been euthanized.

**2.12.4** When mortalities occur on board, the carcasses should be removed from the pen areas and assessed for appropriate disposition. The options for appropriate discharge of the carcasses under MARPOL Annex V will typically be discharge into the sea or discharge to a reception facility. Where the ship has an appropriate storage area on board, limited quantities of treated carcasses may be stored for short periods for subsequent discharge into the sea or to reception facilities. Any storage on board should take into account occupational health and safety requirements.

**2.12.5** Regulation 4.1.4 of MARPOL Annex V permits the discharge into the sea of animal carcasses generated during the normal operation of a ship, but only if the ship is *en route*, outside a special area and Arctic waters, as far as possible from the nearest land and taking into account the guidelines developed by the Organization. To comply with regulation 4.1.4 of MARPOL Annex V, it is recommended that the discharge into the sea should take place more than 100 nautical miles from the nearest land and in the maximum water depth possible.

\* The World Organisation for Animal Health (OIE) formulated “Guidelines for the Transport of Animals by Sea” as part of the *Terrestrial Animal Health Code* (2010).

**2.12.6** When a ship is on a voyage that is not often more than 100 nautical miles from nearest land, the retention of carcasses on board during conditions of high temperatures and high humidity may constitute a threat to human health and safety or to the remaining live animals. In these circumstances it may not be possible to discharge animal carcasses in accordance with these Guidelines. In such circumstances, where the master of the ship determines that such health and safety threats exist, it is recommended the discharge into the sea should take place more than 12 nautical miles from the nearest land. Where the discharge of animal carcasses at sea occurs under these circumstances, the entry in the Garbage Record Book of the position of the ship should also include a remark about these circumstances.

**2.12.7** Animal carcasses should be split or otherwise treated prior to their discharge into the sea. Procedures for the treatment of carcasses should take into account the health and safety of the crew and other livestock cargo. Treatment should facilitate the sinking or dispersal of the carcass when it is discharged into the sea.

**2.12.8** Treatment of a carcass involves:

- .1 manually slitting or cutting the carcass to the extent that the thoracic and abdominal cavities are opened; or
- .2 passing the carcass through equipment such as a comminuter, grinder, hogger or mincer.

**2.12.9** For each animal carcass incinerated, discharged into the sea or discharged to a reception facility, an entry in the Garbage Record Book shall be made. The entry should include the date/time, position of the ship and remarks to specify the animal species (e.g. sheep, cattle, goats), the category “G” and the number of carcasses discharged. Where the discharge is to a reception facility, the receipt obtained from the facility should be attached to the Garbage Record Book.

**2.12.10** Following the completion of a voyage, the master of the ship is encouraged to provide a copy of the pages of the Garbage Record Book that contain the entries for the discharges of animal carcasses into the sea to the flag State and the State from whose port the voyage originated, and other information requested.

**2.12.11** Governments are encouraged to analyse the garbage records of discharges of animal carcasses and other relevant information to inform and assist future reviews of MARPOL Annex V regulations and associated guidelines.

### ***Mortalities in excess of those generated during the normal operation of a ship***

**2.12.12** Carcasses of animals resulting from mortalities in excess of those generated during the normal operation of a ship are not “garbage” under MARPOL Annex V and are not covered under these Guidelines. To assist in managing these situations, masters should contact the flag State of the ship and, where appropriate, port and/or coastal State(s), to seek guidance on the appropriate legal regimes and requirements, as well as consult relevant IMO guidelines and circulars. In particular, masters should refer to the Revised Guidance on the management of spoilt cargoes (MEPC.1/Circ.809), developed by a Joint London Convention and Protocol/MEPC Correspondence Group.

**2.12.13** “Mortalities in excess of those generated during the normal operation of a ship” refers to animal mortalities in excess of those described in paragraph 2.12.2. While this could be a number of animals dying at the same time or within a short period of time, the number of mortalities that exceed those generated during the normal operation of a ship will depend upon the animal species and the total number and/or species carried in the consignment.

**2.12.14** Circumstances that may result in mortalities that exceed those generated during the normal operation of the ship, include:

- .1** malfunctioning of ventilation or watering systems;
- .2** weather events such as heatwaves or storm systems;
- .3** infectious disease outbreaks; and
- .4** refusal of cargo offloading by authorities at destination, leading to the need to euthanize some or all of the live animal cargo.

**2.12.15** The guidance provided above and the Revised Guidance on the management of spoilt cargoes are not substitutes for any stricter requirements imposed upon a ship by a port State, a flag State or the exporting country, for the management of livestock cargoes.

### **2.13 Discharge of fish carried as a cargo**

Fish, including shellfish, carried on board as cargo that have died or been euthanized on board during the voyage are considered to be animal carcasses and should, to the extent practicable, be treated in the manner set out in section 2.12 of these Guidelines. Governments may want to consider

additional actions to reduce the risk of spreading parasitic or pathogenic organisms.

## **3 Management of cargo residues of solid bulk cargoes**

**3.1** Cargo residues are included in the definition of garbage within the meaning of regulation 1.9 of MARPOL Annex V and may be discharged in accordance with regulations 4.1.3 and 6.1.2 and paragraph 5.2.1.5 of part II-A of the Polar Code. However, cargo material contained in the cargo hold bilge water should not be treated as cargo residues if the cargo material is not harmful to the marine environment and the bilge water is discharged from a loaded hold through the ship’s fixed piping bilge drainage system.

**3.2** Cargo residues are considered harmful to the marine environment and subject to regulations 4.1.3 and 6.1.2.1 of MARPOL Annex V if they are residues of solid bulk cargoes (other than grain) which are classified according to the criteria set out in appendix I of the Annex.

**3.3** Cargo residues that are harmful to the marine environment may require special handling not normally provided by reception facilities. Ports and terminals receiving such cargoes should have adequate reception facilities for all relevant residues, including when contained in washwater.

**3.4** Solid bulk cargoes, as defined in regulation VI/1-1.2 of the *International Convention for the Safety of Life at Sea (SOLAS), 1974*, as amended, other than grain, shall be classified in accordance with appendix I of MARPOL Annex V, and declared by the shipper as to whether or not they are harmful to the marine environment. For ships engaged on international voyages, such a declaration should be included in the information required in section 4.2.3 of the *International Maritime Solid Bulk Cargoes (IMSBC) Code*. For ships not engaged on international voyages, other means of declaration may be used, as determined by the Administration.

**3.5** Ports, terminals and ship operators should consider cargo loading, unloading and onboard handling practices\* in order to minimize production of cargo residues. Cargo residues are created through inefficiencies in loading, unloading, onboard handling. Options that should be considered to decrease the amount of such garbage include the following:

- .1** ensuring ships are suitable to carry the intended cargo and also suitable for unloading the same cargo using conventional unloading methods;

\* Refer to the *International Maritime Solid Bulk Cargoes (IMSBC) Code*.

- .2 unloading cargo as efficiently as possible, utilizing all appropriate safety precautions to prevent injury or ship and equipment damage and to avoid or minimize cargo residues; and
- .3 minimizing spillage of the cargo during transfer operations by carefully controlling cargo transfer operations, both on board and from dockside. This should include effective measures to enable immediate communications between relevant ship and shore-based personnel during the transfer operations and when feasible, enclosure of conveyance devices such as conveyor belts. Since this spillage typically occurs in port, it should be completely cleaned up immediately following the loading and unloading event and handled as cargo; delivering it into the intended cargo space or into the appropriate unloading holding area.

**3.6** When the master, based on the information received from the relevant port authorities, determines that there are no adequate reception facilities\* at either the port of departure or the port of destination in the case where both ports are situated within the same special area or Arctic waters, the condition under regulation 6.1.2.5 of MARPOL Annex V or paragraph 5.2.1.5 of part II-A of the Polar Code should be considered satisfied.

**3.7** MARPOL Annex V, regulation 6.1.2, also applies when the “port of departure” and the “next port of destination” are the same port. To discharge cargo hold washwater in this situation, the ship must be *en route* and the discharge must take place not less than 12 nautical miles from the nearest land.

## 4 Training, education and information

**4.1** These Guidelines are intended to address governments, shipowners, ship operators, ships’ crews, cargo owners, port reception facility operators and equipment manufacturers as sources of pollution of the sea by garbage. Accordingly, governments should develop and undertake training, education and public information programmes suited for all seafaring communities under their jurisdiction, prepared and presented in such a way that they communicate with that segment of the community.

\* Refer to the Consolidated Guidance for port reception facility providers and users (MEPC.1/Circ.834).

**4.2** Governments may exchange and maintain information relevant to compliance, non compliance and information on legal proceedings for violations with Annex V regulations through the Organization. Governments are encouraged to provide the Organization with the following:

- .1 technical information on shipboard garbage management methods such as minimization, recovery, recycling, reuse, incineration, compaction, separation, sorting and sanitation system, packaging and provisioning methods;
- .2 educational materials developed to raise the level of compliance with Annex V. This includes printed materials (e.g. placards, posters, brochures, etc.), photographs, DVDs, audio and video tapes, and films as well as synopses of training programmes, seminars and formal curricula; and
- .3 information and reports on the nature and extent of garbage from shipping found along beaches and in coastal waters under their respective jurisdictions. In order to assess the effectiveness of Annex V, these studies should provide details on amounts, distribution, sources and impacts of garbage from shipping.

**4.3** Governments are encouraged to amend their maritime certification examinations and requirements, as appropriate, to include a knowledge of duties imposed by national and international law regarding the control of pollution of the sea by garbage.

**4.4** Placards required by regulation 10.1 of MARPOL Annex V should contain a summary declaration stating the prohibition and restrictions for discharging garbage from ships under the Annex and the possible penalties for failure to comply. Governments are encouraged to develop appropriate placards for use by every ship on their registry of more than 12 m in length overall and fixed and floating platforms (sample placards targeting crew and shipboard operations; fixed or floating platforms and ships operating within 500 metres of such platforms; and passengers are shown in the Appendix).

**4.4.1** The declaration should be placed on a placard at least 12.5 cm by 20 cm, made of durable material and fixed in conspicuous and prominent places on board the ship. Placards should be replaced when damage or wear compromises the readability of the declaration.

**4.4.2** The placards should be placed in prominent places where crew will be working and living and in areas where bins are placed for collection of garbage. These places include galley spaces, mess room(s), wardroom, bridge, main deck and other areas of the ship, as appropriate. The placards should be displayed at line of sight height and be printed in the working language of the crew. Ships which operate internationally will also have placards printed in English, French or Spanish, in accordance with regulation 10.1.2 of MARPOL Annex V.

**4.4.3** Where the ship carries passengers, placards also should be placed in prominent places where passengers are accommodated and congregate. These include cabins and all deck areas for recreational purposes open to passengers.

**4.5** Governments should ensure that appropriate education and training in respect of MARPOL is included in the training programmes leading to STCW and STCW-F certification.

**4.6** Governments are encouraged to have maritime colleges and technical institutes under their jurisdiction develop or augment curricula to include both the legal duties as well as the technical options available to professional seafarers for handling ship-generated garbage. These curricula should also include information on environmental and ecological impacts of garbage. A list of suggested topics to be included in the curriculum is provided below:

- .1 garbage in the marine environment, sources, methods for prevention of release of garbage to the environment and impacts on the environment;
- .2 national and international laws relating to, or impinging upon, shipboard waste management;
- .3 health and sanitation considerations related to the storage, handling and transfer of ship-generated garbage;
- .4 current technology for onboard and shoreside\* processing of ship generated garbage; and
- .5 provisioning options, materials and procedures to minimize the generation of garbage aboard ships.

\* Reference may also be made to other technical guidance such as, ISO/CD16304 *Ships and marine technology – Marine environment protection – Arrangement and management of port waste reception facilities*.

**4.7** Professional associations and societies of ship officers, engineers, naval architects, shipowners, managers and seafarers are encouraged to ensure their members' competency regarding the handling of ship-generated garbage.

**4.8** Ship and reception facility operators should establish detailed training programmes for personnel operating and maintaining ships' garbage reception or processing equipment. It is suggested that the programme include instruction on what constitutes garbage and the applicable regulations for handling and disposing of it. Such training should be reviewed annually and updated as appropriate.

**4.9** Generalized public information programmes are needed to provide information to non-professional seafarers and others concerned with the health and stability of the marine environment, regarding the impacts of garbage at sea. Governments and involved commercial organizations are encouraged to utilize the Organization's library and to exchange resources and materials, as appropriate, to initiate internal and external public awareness programmes.

**4.9.1** Methods for delivering this information include radio and television, articles in periodicals and trade journals, voluntary public projects such as beach clean-up days and 'adopt-a-beach' programmes, public statements by high government officials, posters, brochures, social media, conferences and symposia, cooperative research and development, voluntary product labelling and teaching materials for schools.

**4.9.2** Audiences include recreational sailors and fishermen, port and terminal operators, coastal communities, ship supply industries, shipbuilders, garbage management industries, plastic manufacturers and fabricators, trade associations, educators and governments.

**4.9.3** The subjects addressed in these programmes are recommended to include the relevant domestic and international law; options for handling garbage at sea and upon return to shore; known sources and types of garbage; impacts of plastics on marine life and ship operations; the accumulation of garbage in the world's oceans and seas, impacts on coastal tourist trade; current actions by governments, intergovernmental organizations, non-governmental organizations and sources of further information.

## 5 Port reception facilities for garbage

**5.1** The methodology for determining the adequacy of a reception facility should be based on the number and type of ships that will call at the



port, the waste management requirements of each type of ship as well as the size and location of a port. Emphasis should also be placed on calculating the quantities of garbage, including recyclable material, which is not discharged into the sea, in accordance with the provisions of MARPOL Annex V.

**5.2** It should be noted that, due to differences in port reception procedures and additional treatment among ports, port reception facilities may require the separation on board of:

- .1 food wastes (e.g. animal derived products and by-products because of risk of animal diseases);
- .2 cooking oil (animal derived products and by-products because of risk of animal diseases);
- .3 plastics;
- .4 domestic waste, operational waste and recyclable or reusable material;
- .5 special items like medical waste, outdated pyrotechnics and fumigation remnants;
- .6 animal wastes, including used bedding from the transport of live animals (due to risk of disease) but excluding drainage from spaces containing living animals;
- .7 cargo residues; and
- .8 E-waste such as electronic cards, gadgets, equipment, computers, printer cartridges, etc.

**5.3** Ship, port and terminal operators should consider the following when determining quantities and types of garbage on a per ship basis:

- .1 types of garbage normally generated;
- .2 ship type and design;
- .3 ship operating route;
- .4 number of persons on board;
- .5 duration of voyage;
- .6 time spent in areas where discharge into the sea is prohibited or restricted; and
- .7 time spent in port.

**5.4** Governments, in assessing the adequacy of reception facilities, should also consider the technological challenges associated with the recycling, treatment and discharge of garbage received from ships and should take responsible actions within their national programmes to consider garbage management standards. In doing so, relevant international standards should be taken into account.

**5.4.1** The type and capacity of equipment for treatment and final disposal of garbage is a significant factor in determining the adequacy of a reception facility. It not only provides a measure of the time required to complete the process, but it also is the primary means for ensuring that ultimate disposal of the garbage is environmentally sound.

**5.4.2** Governments should continue to carry out studies into the provision of reception facilities at ports in their respective countries in close cooperation with port authorities and other local authorities responsible for garbage handling. Such studies should include information such as a port-by-port listing of available garbage reception facilities, the types of garbage they are equipped to handle, their capacities and any special procedures required to use them. Governments should submit data on the availability of port reception facilities to GISIS.

**5.4.3** While selecting the most appropriate type of reception facility for a particular port, consideration should be given to several alternative methods available. In this regard, floating plants for collection of garbage, such as barges or self-propelled ships, might be considered more effective in a particular location than land-based facilities.

**5.5** These Guidelines aim to stimulate governments to develop modern waste reception facilities and continue to improve their garbage management processes. Information on developments in this area should be forwarded to the Organization.

**5.6** Governments are encouraged to develop policies and practices that facilitate the reduction, use and recycling of ship-generated garbage. The development of port reception facilities and associated guidance that aids the handling of separated garbage from ships should encourage ships to separate garbage on board.

**5.7** Small Island Developing States may satisfy the requirements for reception facilities through regional arrangements when, because of those

States' unique circumstances, such arrangements are the only practical means to satisfy these requirements.\*

## 6 Enhancement of compliance with MARPOL Annex V

**6.1** Recognizing that direct enforcement of MARPOL Annex V regulations, particularly at sea, is difficult to accomplish, governments are encouraged to consider not only restrictive and punitive measures consistent with international law, but also the removal of any disincentives, the creation of positive incentives and initiatives to facilitate more effective compliance, and the development of voluntary measures within the regulated community when developing programmes and domestic legislation to ensure compliance with the Annex.

### 6.2 Compliance facilitation and enforcement

**6.2.1** Ships should inform their flag State of ports in foreign countries Party to MARPOL Annex V which do not have adequate port reception facilities for garbage. This can provide a basis for advising responsible governments of possible problems and calling the Organization's attention to possible issues of compliance. An acceptable reporting format is reproduced in the Consolidated Guidance for port reception facility providers and users (MEPC.1/Circ.834), along with the procedure for submitting and handling such reports.

**6.2.2** Governments should develop a strategy to assess or audit port reception facilities under their jurisdiction. Detailed guidance in this regard is provided by the Organization. At a minimum, periodic inspection of the reception facilities is recommended and consideration should be given to establishing a documentation system (e.g. letters or certificates) stating that adequate facilities are available for receiving ship-generated garbage.

**6.2.2.1** Governments are encouraged to improve the adequacy and efficiency of existing port reception facilities for fishing gear.

**6.2.3** Governments should identify appropriate agencies for enforcement and facilitating compliance and provide legal authority, adequate training, funding and equipment to incorporate the goals and objectives under MARPOL Annex V regulations into their responsibilities. In those cases where

\* Refer to the 2012 Guidelines for the development of a regional reception facilities plan (resolution MEPC.221(63)).

customs or agricultural officials are responsible for receiving and inspecting garbage, governments should ensure that the inspections are facilitated.

**6.2.4** Governments should consider the use of garbage management reporting systems. Such reporting systems may provide valuable data for measuring and monitoring the impacts of garbage regulations and management and identifying trends over time. A reporting system could be based on the information in garbage record books (where applicable) or ship's official log-book. In addition, advance notification forms and garbage reception receipts could provide input into the garbage reporting system.

**6.2.5** A garbage management reporting system may also include reporting of discharges of garbage. Particular attention should be given to the reporting of any discharge in special areas or Arctic waters; discharge at port reception facilities; and discharge of garbage into the sea. Reports should include the date, time, location by latitude and longitude or name of port, type of garbage and estimated amount of garbage discharged. Particular attention should be given to the reporting of:

- .1 the loss of fishing gear;
- .2 the discharge of cargo residues;
- .3 any discharge in special areas or Arctic waters;
- .4 discharge at port reception facilities; and
- .5 discharge of garbage into the sea, in those limited situations where permitted.

**6.2.6** The issuance of documents or receipts (i.e. IMO standard forms) by port reception facilities might also be used in maintaining a garbage management reporting system.

### 6.3 Compliance incentive systems

**6.3.1** The augmentation of port reception facilities to serve ship traffic without undue delay or inconvenience may call for capital investment from port and terminal operators as well as the garbage management companies serving those ports. Governments are encouraged to evaluate means within their authority to lessen this impact, thereby helping to ensure that garbage delivered to port is actually received and disposed of properly at reasonable cost or without charging special fees to individual ships. Such means could include, but are not limited to:

- .1 tax incentives;
- .2 loan guarantees;

- .3 public ship business preference;
- .4 special funds to assist in problem situations such as remote ports with no land-based garbage management system in which to deliver ships' garbage;
- .5 government subsidies; and
- .6 special funds to help defray the cost of a bounty programme for lost, abandoned or discarded fishing gear or other persistent garbage. The programme would make appropriate payments to persons who retrieve such fishing gear, or other persistent garbage other than their own, from marine waters under the jurisdiction of government.

**6.3.2** The minimization of taking packaging on board and the installation of shipboard garbage management handling and processing equipment would facilitate compliance with MARPOL Annex V and lessen the burden on port reception facilities to process garbage for discharge. Therefore, governments might consider actions to encourage the reduction of packaging and the installation of certain types of garbage processing equipment on ships operating under their flag. For example, programmes to lessen costs to shipowners for purchasing and installing such equipment, or requirements for installing compactors, incinerators and comminuters during construction of new ships could be very helpful.

**6.3.3** Governments are encouraged to consider the economic impacts of domestic regulations intended to ensure compliance with MARPOL Annex V. Due to the highly variable nature of ship operations and configurations, consideration should be given in domestic regulations to permitting ships the greatest range of options for complying with the Annex. However, any range of options needs to be consistent with the Annex and should facilitate implementation and compliance.

**6.3.4** Governments are encouraged to support research and development of technology that facilitates compliance of ships and ports with MARPOL Annex V regulations. This research should concentrate on:

- .1 minimization of packaging;
- .2 shipboard garbage handling systems;
- .3 ship provision innovations to minimize garbage generation;
- .4 loading, unloading and cleaning technologies to minimize dunnage, spillage and cargo residues;

- .5 new ship construction design to facilitate garbage management and transfer and to minimize retention of cargo in ship holds; and
- .6 wharf and berth design to facilitate garbage management and transfer.

**6.3.5** Governments are encouraged to work within the Organization to develop port reception systems that simplify the transfer of garbage for ships engaged on international voyages.

## **6.4 Voluntary measures**

**6.4.1** Governments are encouraged to assist ship operators and seafarers' organizations in developing resolutions, by-laws and other internal mechanisms that encourage compliance with MARPOL Annex V regulations. Such groups include:

- .1 seamen and officer unions;
- .2 associations of shipowners, insurers and classification societies;
- .3 pilot associations; and
- .4 fishermen's organizations.

**6.4.2** Governments are encouraged to assist and support, where possible, the development of mechanisms to promote compliance with MARPOL Annex V among port authorities, terminal operators, stevedores, longshoremen and land-based garbage management authorities.

Appendix

Sample placards

Sample placard targeting crew and shipboard operations

**Discharge of all garbage into the sea is prohibited except provided otherwise**

The MARPOL Convention and domestic law prohibit the discharge of most garbage from ships. Only the following garbage types are allowed to be discharged and under the specified conditions.

Outside special areas designated under MARPOL Annex V and Arctic waters:

- Comminuted or ground food wastes (capable of passing through a screen with openings no larger than 25 millimetres) may be discharged not less than 3 nautical miles from the nearest land.
- Other food wastes may be discharged not less than 12 nautical miles from the nearest land.
- Cargo residues classified as not harmful to the marine environment may be discharged not less than 12 nautical miles from the nearest land.
- Cleaning agents or additives in cargo hold, deck and external surfaces washing water may be discharged only if they are not harmful to the marine environment.
- With the exception of discharging cleaning agents or additives that are not harmful to the marine environment and are contained in washing water, the ship must be *en route* and as far as practicable from the nearest land.

Within special areas designated under MARPOL Annex V and Arctic waters

- More stringent discharge requirements apply for the discharges of food wastes and cargo residues; and
- Consult MARPOL Annex V, chapter 5 of part II-A of the Polar Code and the shipboard garbage management plan for details.

For all areas of the sea, ships carrying specialized cargoes such as live animals or solid bulk cargoes should consult Annex V and the associated Guidelines for the implementation of Annex V.

**Discharge of any type of garbage must be entered in the Garbage Record Book**

**Violation of these requirements may result in penalties**

**Sample placard targeting fixed or floating platforms and ships operating within 500 metres of such platforms**

**Discharge of all garbage into the sea is prohibited except provided otherwise**

The MARPOL Convention and domestic law prohibit the discharge of all garbage into the sea from fixed or floating platforms and from all other ships when alongside or within 500 metres of such platforms.

Exception: Comminuted or ground food wastes may be discharge from fixed or floating platforms located more than 12 nautical miles from the nearest land and from all other ships when alongside or within 500 metres of such platforms. Comminuted or ground food wastes must be capable of passing through a screen no larger than 25 millimetres.

**Discharge of any type of garbage must be entered in the Garbage Record Book**

**Violation of these requirements may result in penalties**

**Sample placard targeting passengers**

**Discharge of all garbage into the sea is prohibited except provided otherwise**

The MARPOL Convention and domestic law generally prohibit the discharge of most forms of garbage from ships into the sea.

**Violation of these requirements may result in penalties**

**All garbage is to be retained on board and placed in the bins provided**



## **1 Introduction**

**1.1** In 2011, IMO adopted amendments to MARPOL Annex V which require that:

- .1** every ship of 100 gross tonnage and above, and every ship certified to carry 15 or more persons, and fixed or floating platforms, shall carry a garbage management plan;
- .2** every ship of 400 gross tonnage and above, and every ship certified to carry 15 or more persons engaged in voyages to ports or offshore terminals of another Party, and every fixed or floating platform, shall be provided with a Garbage Record Book; and
- .3** every ship of 12 m or more in length overall, and fixed or floating platforms, shall display placards which notify the crew and passengers of the ship's disposal requirements of regulations 3, 4, 5 and 6 of the Annex as applicable.

These provisions are included in regulation 10 to the revised MARPOL Annex V with an entry into force date of 1 January 2013.

**1.2** These Guidelines provide direction on complying with the requirements for a ship's garbage management plan, and are intended to assist the shipowner/operator in the implementation of regulation 10.2 of the revised MARPOL Annex V. It is assumed that the author of the garbage management plan is familiar with the requirements of the revised MARPOL Annex V and the 2012 Guidelines for the implementation of Annex V of MARPOL.

**1.3** Shipowners and operators should also consult other available technical guidance on shipboard garbage handling such as, ISO 21070 "Standard for the Management and handling of shipboard garbage" which outlines best management practices for shipboard garbage management and, to the extent it is consistent with the revised MARPOL Annex V, should be incorporated in any garbage management plan.

**1.4** A ship's garbage management plan should detail the specific ship's equipment, arrangements and procedures for the handling of garbage. The plan may contain extracts and/or references to existing company instructions.

## 2 Regulatory requirements

2.1 Regulation 10.2 of MARPOL Annex V reads as follows:

“Every ship of 100 gross tonnage and above, and every ship which is certified to carry 15 or more persons, and fixed or floating platforms, shall carry a garbage management plan which the crew shall follow. This plan shall provide written procedures for minimizing, collecting, storing, processing and disposing of garbage, including the use of the equipment on board. It shall also designate the person or persons in charge of carrying out the plan. Such a plan shall be based on the guidelines developed by the Organization and written in the working language of the crew.”

## 3 Prevention of pollution from garbage

3.1 To achieve cost-effective and environmentally sound results, many garbage management planners use a combination of complementary techniques to manage garbage, such as the following:

- .1 reduction at source;
- .2 reusing or recycling;
- .3 onboard processing (treatment);
- .4 discharge into the sea in those limited situations where it is permitted; and
- .5 discharge to a port reception facility.

3.2 When requisitioning stores and provisions, shipping companies should encourage their suppliers to remove or reduce all packaging, at an early stage, to limit the generation of garbage on board ships.

3.3 When garbage is generated aboard a ship, procedures should be defined to enable the crew to sort the material that can be reused onboard the ship or recycled at an appropriate port reception facility.

3.4 Ship's garbage is made up of distinct components, some of which are regulated in MARPOL Annex V, while others may be regulated locally, nationally or regionally. Each component of the garbage should be evaluated separately to determine the best management practice for that type of garbage.

## 4 Matters which should be addressed in the garbage management plan

### 4.1 Designated person in charge of carrying out the plan

4.1.1 In accordance with regulation 10.2 of the revised MARPOL Annex V, the plan shall designate a person in charge of carrying out the plan. The person should ensure the garbage management plan is followed.

4.1.2 This person should be assisted by ship's crew to ensure that the minimization, collection, separation and processing of garbage is appropriate and efficient in all areas of the ship.

### 4.2 Procedures for collecting garbage

4.2.1 Identify suitable receptacles for collection and separation.\*

4.2.2 Identify the locations of receptacles and collection and separation stations.

4.2.3 Describe the process of how garbage is transported from the source of generation to the collection and separation stations.

4.2.4 Describe how garbage is to be handled between primary collection and separation stations and other handling methods relating to the following:

- .1 needs of reception facilities, taking into account possible local recycling arrangements;
- .2 onboard processing and potential reuse of garbage aboard the ship;
- .3 storage; and
- .4 discharge into the sea in those limited situations where it is permitted.

4.2.5 Describe the training or education programmes to facilitate collection of garbage and sorting of reusable or recyclable material.

\* Separation of garbage for the purposes of these Guidelines is considered part of the collection process. Separation may take place at the source or at a separate designated station.

### 4.3 Procedures for processing garbage

4.3.1 Identify personnel responsible for the operation of the processing equipment.

4.3.2 Identify available processing devices and their capacities.

4.3.3 Identify the locations of processing devices and processing stations.

4.3.4 Identify the categories of garbage that are to be processed by each of the available processing devices.

4.3.5 Describe how material that can be reused or recycled is to be handled between primary processing stations and the storage or transfer stations.

4.3.6 Describe processing procedures used for the following:

- .1 needs of reception facilities, taking into account available recycling arrangements;
- .2 storage; and
- .3 discharge into the sea in those limited situations where it is permitted.

4.3.7 Describe the training or education programmes to facilitate the processing of garbage and reuse or recycling of material.

4.3.8 Identify standard operating procedures for the operation and maintenance of the equipment used to manage garbage. This may be done by reference to documents available on board.

### 4.4 Procedures for storing garbage or reusable or recyclable material

4.4.1 Identify the locations, the intended use, and the capacities of available storage stations for each category of garbage or reusable or recyclable material.

4.4.2 Describe the condition of how the garbage will be stored (for example, "food – frozen"; "cans – compacted and stacked"; "paper – compacted and should remain dry", etc.).

4.4.3 Describe how garbage, including reusable and recyclable material, is to be handled between storage stations and discharge with regard to the following:

- .1 discharge to reception facilities, taking into account available recycling arrangements; and
- .2 discharge into the sea in those limited situations where it is allowed.

4.4.4 Describe the training or education programmes to facilitate the storing of garbage and options for reusing and recycling components of the waste stream.

### 4.5 Procedures for discharging of garbage

4.5.1 Describe the ship's procedures to ensure and demonstrate compliance with the requirements of the revised MARPOL Annex V for the discharge of garbage.

## Chapter 1 – General

### Regulation 1

#### *Definitions*

For the purposes of this Annex:

- 1 *Animal carcasses* means the bodies of any animals that are carried on board as cargo and that die or are euthanized during the voyage.
- 2 *Cargo residues* means the remnants of any cargo which are not covered by other Annexes to the present Convention and which remain on the deck or in holds following loading or unloading, including loading and unloading excess or spillage, whether in wet or dry condition or entrained in wash water but does not include cargo dust remaining on the deck after sweeping or dust on the external surfaces of the ship.
- 3 *Cooking oil* means any type of edible oil or animal fat used or intended to be used for the preparation or cooking of food, but does not include the food itself that is prepared using these oils.
- 4 *Domestic wastes* means all types of wastes not covered by other Annexes that are generated in the accommodation spaces on board the ship. Domestic wastes does not include grey water.
- 5 *En route* means that the ship is underway at sea on a course or courses, including deviation from the shortest direct route, which as far as practicable for navigational purposes, will cause any discharge to be spread over as great an area of the sea as is reasonable and practicable.
- 6 *Fishing gear* means any physical device or part thereof or combination of items that may be placed on or in the water or on the sea-bed with the intended purpose of capturing, or controlling for subsequent capture or harvesting, marine or fresh water organisms.
- 7 *Fixed or floating platforms* means fixed or floating structures located at sea which are engaged in the exploration, exploitation or associated offshore processing of sea-bed mineral resources.
- 8 *Food wastes* means any spoiled or unspoiled food substances and includes fruits, vegetables, dairy products, poultry, meat products and food scraps generated aboard ship.



**9** *Garbage* means all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in other Annexes to the present Convention. Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities which involve the transport of fish including shellfish for placement in the aquaculture facility and the transport of harvested fish including shellfish from such facilities to shore for processing.

**10** *Incinerator ashes* means ash and clinkers resulting from shipboard incinerators used for the incineration of garbage.

**11** *Nearest land*. The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with international law, except that, for the purposes of the present Annex, "from the nearest land" off the north-eastern coast of Australia shall mean from a line drawn from a point on the coast of Australia in:

latitude 11°00' S, longitude 142°08' E  
to a point in latitude 10°35' S, longitude 141°55' E,  
thence to a point latitude 10°00' S, longitude 142°00' E,  
thence to a point latitude 09°10' S, longitude 143°52' E,  
thence to a point latitude 09°00' S, longitude 144°30' E,  
thence to a point latitude 10°41' S, longitude 145°00' E,  
thence to a point latitude 13°00' S, longitude 145°00' E,  
thence to a point latitude 15°00' S, longitude 146°00' E,  
thence to a point latitude 17°30' S, longitude 147°00' E,  
thence to a point latitude 21°00' S, longitude 152°55' E,  
thence to a point latitude 24°30' S, longitude 154°00' E,  
thence to a point on the coast of Australia in  
latitude 24°42' S, longitude 153°15' E.

**12** *Operational wastes* means all solid wastes (including slurries) not covered by other Annexes that are collected on board during normal maintenance or operations of a ship, or used for cargo stowage and handling. Operational wastes also includes cleaning agents and additives contained in cargo hold and external wash water. Operational wastes does not include grey water, bilge water, or other similar discharges essential to the operation of a ship, taking into account the guidelines developed by the Organization.

**13** *Plastic* means a solid material which contains as an essential ingredient one or more high molecular mass polymers and which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure. Plastics have material properties ranging from hard and brittle to soft and elastic. For the purposes of this annex, "all plastics" means all garbage that consists of or includes plastic in any form, including synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products.

**14** *Special area* means a sea area where for recognized technical reasons in relation to its oceanographic and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by garbage is required.

For the purposes of this Annex the special areas are the Mediterranean Sea area, the Baltic Sea area, the Black Sea area, the Red Sea area, the Gulfs area, the North Sea area, the Antarctic area and the Wider Caribbean Region, which are defined as follows:

- .1 The Mediterranean Sea area means the Mediterranean Sea proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41° N parallel and bounded to the west by the Straits of Gibraltar at the meridian 5°36' W.
- .2 The Baltic Sea area means the Baltic Sea proper with the Gulf of Bothnia and the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 57°44.8' N.
- .3 The Black Sea area means the Black Sea proper with the boundary between the Mediterranean and the Black Sea constituted by the parallel 41° N.
- .4 The Red Sea area means the Red Sea proper including the Gulfs of Suez and Aqaba bounded at the south by the rhumb line between Ras si Ane (12°28.5' N, 43°19.6' E) and Husn Murad (12°40.4' N, 43°30.2' E).
- .5 The Gulfs area means the sea area located north-west of the rhumb line between Ras al Hadd (22°30' N, 59°48' E) and Ras al Fastej (25°04' N, 61°25' E).
- .6 The North Sea area means the North Sea proper including seas therein with the boundary between:

- .1 the North Sea southwards of latitude 62°N and eastwards of longitude 4° W;
  - .2 the Skagerrak, the southern limit of which is determined east of the Skaw by latitude 57°44.8' N; and
  - .3 the English Channel and its approaches eastwards of longitude 5° W and northwards of latitude 48°30' N.
- .7 The Antarctic area means the sea area south of latitude 60° S.
- .8 The Wider Caribbean Region means the Gulf of Mexico and Caribbean Sea proper including the bays and seas therein and that portion of the Atlantic Ocean within the boundary constituted by the 30° N parallel from Florida eastward to 77°30' W meridian, thence a rhumb line to the intersection of 20° N parallel and 59° W meridian, thence a rhumb line to the intersection of 7°20' N parallel and 50° W meridian, thence a rhumb line drawn southwesterly to the eastern boundary of French Guiana.

**15** *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

**16** *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization.\*

**17** *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

**18** *Audit Standard* means the Code for Implementation.

## Regulation 2

### Application

Unless expressly provided otherwise, the provisions of this Annex shall apply to all ships.

\* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme* (resolution A.1067(28)).

## Regulation 3

### General prohibition on discharge of garbage into the sea

**1** Discharge of all garbage into the sea is prohibited, except as provided otherwise in regulations 4, 5, 6 and 7 of this Annex and section 5.2 of part II-A of the Polar Code, as defined in regulation 13.1 of this Annex.

**2** Except as provided in regulation 7 of this Annex, discharge into the sea of all plastics, including but not limited to synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products is prohibited.

**3** Except as provided in regulation 7 of this Annex, the discharge into the sea of cooking oil is prohibited.

## Regulation 4

### Discharge of garbage outside special areas

**1** Discharge of the following garbage into the sea outside special areas shall only be permitted while the ship is *en route* and as far as practicable from the nearest land, but in any case not less than:

- .1 3 nautical miles from the nearest land for food wastes which have been passed through a comminuter or grinder. Such comminuted or ground food wastes shall be capable of passing through a screen with openings no greater than 25 millimetres.
- .2 12 nautical miles from the nearest land for food wastes that have not been treated in accordance with subparagraph .1 above.
- .3 12 nautical miles from the nearest land for cargo residues that cannot be recovered using commonly available methods for unloading. These cargo residues shall not contain any substances classified as harmful to the marine environment, in accordance with the criteria set out in appendix I of this Annex.
- .4 For animal carcasses, discharge shall occur as far from the nearest land as possible, taking into account the guidelines developed by the Organization.

**2** Cleaning agents or additives contained in cargo hold, deck and external surfaces wash water may be discharged into the sea, but these substances must not be harmful to the marine environment, taking into account guidelines developed by the Organization.

3 Solid bulk cargoes as defined in regulation VI/1-1.2 of the *International Convention for the Safety of Life at Sea (SOLAS), 1974*, as amended, other than grain, shall be classified in accordance with appendix I of this Annex, and declared by the shipper as to whether or not they are harmful to the marine environment.\*

4 When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

### Regulation 5

#### *Special requirements for discharge of garbage from fixed or floating platforms*

1 Subject to the provisions of paragraph 2 of this regulation, the discharge into the sea of any garbage is prohibited from fixed or floating platforms and from all other ships when alongside or within 500 metres of such platforms.

2 Food wastes may be discharged into the sea from fixed or floating platforms located more than 12 nautical miles from the nearest land and from all other ships when alongside or within 500 metres of such platforms, but only when the wastes have been passed through a comminuter or grinder. Such comminuted or ground food wastes shall be capable of passing through a screen with openings no greater than 25 millimetres.

### Regulation 6

#### *Discharge of garbage within special areas*

1 Discharge of the following garbage into the sea within special areas shall only be permitted while the ship is *en route* and as follows:

- .1 Discharge into the sea of food wastes as far as practicable from the nearest land, but not less than 12 nautical miles from the nearest land or the nearest ice shelf. Food wastes shall be comminuted or ground and shall be capable of passing through a screen with openings no greater than

\* For ships engaged in international voyages, reference is made to section 4.2.3 of the *International Maritime Solid Bulk Cargoes (IMSBC) Code*; for ships not engaged in international voyages, other means of declaration may be used, as determined by the Administration.

25 millimetres. Food wastes shall not be contaminated by any other garbage type. Discharge of introduced avian products, including poultry and poultry parts, is not permitted in the Antarctic area unless it has been treated to be made sterile.

.2 Discharge of cargo residues that cannot be recovered using commonly available methods for unloading, where all the following conditions are satisfied:

- .1 cargo residues contained in hold washing water do not include any substances classified as harmful to the marine environment according to the criteria set out in appendix I of this Annex;
- .2 solid bulk cargoes as defined in regulation VI/1-1.2 of the *International Convention for the Safety of Life at Sea (SOLAS), 1974*, as amended, other than grain, shall be classified in accordance with appendix I of this Annex, and declared by the shipper as to whether or not they are harmful to the marine environment;\*
- .3 cleaning agents or additives contained in hold washing water do not include any substances classified as harmful to the marine environment taking into account guidelines developed by the Organization;
- .4 both the port of departure and the next port of destination are within the special area and the ship will not transit outside the special area between those ports;
- .5 no adequate reception facilities are available at those ports taking into account guidelines developed by the Organization; and
- .6 where the conditions of subparagraphs .2.1 to .2.5 of this paragraph have been fulfilled, discharge of cargo hold washing water containing residues shall be made as far as practicable from the nearest land or the nearest ice shelf and not less than 12 nautical miles from the nearest land or the nearest ice shelf.

2 Cleaning agents or additives contained in deck and external surfaces wash water may be discharged into the sea, but only if these substances

\* For ships engaged in international voyages, reference is made to section 4.2.3 of the *International Maritime Solid Bulk Cargoes (IMSBC) Code*; for ships not engaged in international voyages, other means of declaration may be used, as determined by the Administration.

are not harmful to the marine environment, taking into account guidelines developed by the Organization.

3 The following rules (in addition to the rules in paragraph 1 of this regulation) apply with respect to the Antarctic area:

- .1 Each Party at whose ports ships depart *en route* to or arrive from the Antarctic area undertakes to ensure that as soon as practicable adequate facilities are provided for the reception of all garbage from all ships, without causing undue delay, and according to the needs of the ships using them.
- .2 Each Party shall ensure that all ships entitled to fly its flag, before entering the Antarctic area, have sufficient capacity on board for the retention of all garbage, while operating in the area and have concluded arrangements to discharge such garbage at a reception facility after leaving the area.

4 When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

### Regulation 7

#### Exceptions

1 Regulations 3, 4, 5 and 6 of this Annex and section 5.2 of chapter 5 of part II-A of the Polar Code shall not apply to:

- .1 the discharge of garbage from a ship necessary for the purpose of securing the safety of a ship and those on board or saving life at sea; or
- .2 the accidental loss of garbage resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken before and after the occurrence of the damage, to prevent or minimize the accidental loss; or
- .3 the accidental loss of fishing gear from a ship provided that all reasonable precautions have been taken to prevent such loss; or
- .4 the discharge of fishing gear from a ship for the protection of the marine environment or for the safety of that ship or its crew.

2 Exception of *en route*:

- .1 The *en route* requirements of regulations 4 and 6 of this Annex and chapter 5 of part II-A of the Polar Code shall not apply to the discharge of food wastes where it is clear the retention on board of these food wastes presents an imminent health risk to the people on board.

### Regulation 8

#### Reception facilities\*

1 Each Party undertakes to ensure the provision of adequate facilities at ports and terminals for the reception of garbage without causing undue delay to ships, and according to the needs of the ships using them.

2 Reception facilities within special areas

- .1 Each Party, the coastline of which borders a special area, undertakes to ensure that as soon as possible, in all ports and terminals within the special area, adequate reception facilities are provided, taking into account the needs of ships operating in these areas.
- .2 Each Party concerned shall notify the Organization of the measures taken pursuant to paragraph 2.1 of this regulation. Upon receipt of sufficient notifications the Organization shall establish a date from which the requirements of regulation 6 of this Annex in respect of the area in question are to take effect. The Organization shall notify all Parties of the date so established no less than 12 months in advance of that date. Until the date so established, ships that are navigating in a special area shall comply with the requirements of regulation 4 of this Annex as regards discharges outside special areas.

3 Small Island Developing States may satisfy the requirements in paragraphs 1 and 2.1 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.†

\* Refer to Consolidated guidance for port reception facility providers and users (MEPC.1/Circ.834).

† Refer to 2012 Guidelines for the development of a regional reception facilities plan (resolution MEPC.221(63)).

The government of each Party participating in the Arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
  - .2 particulars of the identified Regional Ships Waste Reception Centres; and
  - .3 particulars of those ports with only limited facilities.
- 4 Each Party shall notify the Organization for transmission to the Contracting Parties concerned of all cases where the facilities provided under this regulation are alleged to be inadequate.

### Regulation 9

#### *Port State control on operational requirements\**

1 A ship when in a port or an offshore terminal of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by garbage.

2 In the circumstances given in paragraph 1 of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Annex.

3 Procedures relating to the port State control prescribed in article 5 of the present Convention shall apply to this regulation.

4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

### Regulation 10

#### *Placards, garbage management plans<sup>†</sup> and garbage record-keeping*

1 .1 Every ship of 12 m or more in length overall and fixed or floating platforms shall display placards which notify the crew

\* Refer to *Procedures for port State control*, 2011 (resolution A.1052(27)).

<sup>†</sup> Refer to 2012 Guidelines for the development of garbage management plans (resolution MEPC.220(63), as amended) (see page 45).

and passengers of the discharge requirements of regulations 3, 4, 5 and 6 of this Annex and section 5.2 of part II-A of the Polar Code, as applicable.

- .2 The placards shall be written in the working language of the ship's crew and, for ships engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention, shall also be in English, French or Spanish.

2 Every ship of 100 gross tonnage and above, and every ship which is certified to carry 15 or more persons, and fixed or floating platforms shall carry a garbage management plan which the crew shall follow. This plan shall provide written procedures for minimizing, collecting, storing, processing and disposing of garbage, including the use of the equipment on board. It shall also designate the person or persons in charge of carrying out the plan. Such a plan shall be based on the guidelines developed by the Organization\* and written in the working language of the crew.

3 Every ship of 400 gross tonnage and above and every ship which is certified to carry 15 or more persons engaged in voyages to ports or offshore terminals under the jurisdiction of another Party to the Convention and every fixed or floating platform shall be provided with a Garbage Record Book. The Garbage Record Book, whether as a part of the ship's official logbook or otherwise, shall be in the form specified in appendix II to this Annex:

- .1 Each discharge into the sea or to a reception facility, or a completed incineration, shall be promptly recorded in the Garbage Record Book and signed for on the date of the discharge or incineration by the officer in charge. Each completed page of the Garbage Record Book shall be signed by the master of the ship. The entries in the Garbage Record Book shall be at least in English, French or Spanish. Where the entries are also made in an official language of the State whose flag the ship is entitled to fly, the entries in that language shall prevail in case of a dispute or discrepancy.
- .2 The entry for each discharge into the sea under regulations 4, 5, 6 or section 5.2 of chapter 5 of part II-A of the Polar Code shall include date and time, position of the ship (latitude and longitude), category of the garbage and the estimated amount (in cubic metres) discharged. For discharge of cargo residues

\* Refer to 2012 Guidelines for the development of garbage management plans (resolution MEPC.220(63), as amended) (see page 45).

the discharge start and stop positions shall be recorded in addition to the foregoing.

- .3 The entry for each completed incineration shall include date and time and position of the ship (latitude and longitude) at the start and stop of incineration, categories of garbage incinerated and the estimated amount incinerated for each category in cubic metres.
- .4 The entry for each discharge to a port reception facility or another ship shall include date and time of discharge, port or facility or name of ship, categories of garbage discharged, and the estimated amount discharged for each category in cubic metres.
- .5 The Garbage Record Book along with receipts obtained from reception facilities shall be kept on board the ship or the fixed or floating platform, and in such a place as to be readily available for inspection at all reasonable times. This document shall be preserved for a period of at least two years from the date of the last entry made in it.
- .6 In the event of any discharge or accidental loss referred to in regulation 7 of this Annex an entry shall be made in the Garbage Record Book, or in the case of any ship of less than 400 gross tonnage, an entry shall be made in the ship's official logbook of the date and time of occurrence, port or position of the ship at time of occurrence (latitude, longitude and water depth if known), the reason for the discharge or loss, details of the items discharged or lost, categories of garbage discharged or lost, estimated amount for each category in cubic metres, reasonable precautions taken to prevent or minimize such discharge or accidental loss and general remarks.

4 The Administration may waive the requirements for Garbage Record Books for:

- .1 any ship engaged on voyages of 1 h or less in duration which is certified to carry 15 or more persons; or
- .2 fixed or floating platforms.

5 The competent authority of the government of a Party to the Convention may inspect the Garbage Record Books or ship's official logbook on board any ship to which this regulation applies while the ship is in its ports or offshore terminals and may make a copy of any entry in those

books, and may require the master of the ship to certify that the copy is a true copy of such an entry. Any copy so made, which has been certified by the master of the ship as a true copy of an entry in the ship's Garbage Record Book or ship's official logbook, shall be admissible in any judicial proceedings as evidence of the facts stated in the entry. The inspection of a Garbage Record Book or ship's official logbook and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

6 The accidental loss or discharge of fishing gear as provided for in regulations 7.1.3 and 7.1.4 which poses a significant threat to the marine environment or navigation shall be reported to the State whose flag the ship is entitled to fly, and, where the loss or discharge occurs within waters subject to the jurisdiction of a coastal State, also to that coastal State.

## Chapter 2 – Verification of compliance with the provisions of this Annex

### Regulation 11

#### *Application*

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

### Regulation 12

#### *Verification of compliance*

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization.\*

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization.\*

\* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme* (resolution A.1067(28)).

- 4 Audit of all Parties shall be:
- .1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization; and
  - .2 conducted at periodic intervals, taking into account the guidelines developed by the Organization.

## Chapter 3 – International Code for Ships Operating in Polar Waters

### Regulation 13

#### Definitions

For the purpose of this Annex,

- 1 *Polar Code* means the *International Code for Ships Operating in Polar Waters*, consisting of an introduction, part I-A and part II-A and parts I-B and II-B, as adopted by resolutions MSC.385(94) and MEPC.264(68), as may be amended, provided that:
- .1 amendments to the environment-related provisions of the introduction and chapter 5 of part II-A of the Polar Code are adopted, brought into force and take effect in accordance with the provisions of article 16 of the present Convention concerning the amendment procedures applicable to an appendix to an annex; and
  - .2 amendments to part II-B of the Polar Code are adopted by the Marine Environment Protection Committee in accordance with its Rules of Procedure.
- 2 *Arctic waters* means those waters which are located north of a line from the latitude 58°00'.0 N and longitude 042°00'.0 W to latitude 64°37'.0 N, longitude 035°27'.0 W and thence by a rhumb line to latitude 67°03'.9 N, longitude 026°33'.4 W and thence by a rhumb line to the latitude 70°49'.56 N and longitude 008°59'.61 W (Sørkapp, Jan Mayen) and by the southern shore of Jan Mayen to 73°31'.6 N and 019°01'.0 E by the Island of Bjørnøya, and thence by a great circle line to the latitude 68°38'.29 N and longitude 043°23'.08 E (Cap Kanin Nos) and thence by the northern shore of the Asian Continent eastward to the Bering Strait and thence from the Bering Strait westward to latitude 60° N as far as Il'pyrskiy and following the 60th North parallel eastward as far as and including Etoin Strait and thence by the northern

shore of the North American continent as far south as latitude 60° N and thence eastward along parallel of latitude 60° N, to longitude 056°37'.1 W and thence to the latitude 58°00'.0 N, longitude 042°00'.0 W.

- 3 *Polar waters* means Arctic waters and/or the Antarctic area.

### Regulation 14

#### Application and requirements

- 1 This chapter applies to all ships to which this Annex applies, operating in polar waters.
- 2 Unless expressly provided otherwise, any ship covered by paragraph 1 of this regulation shall comply with the environment-related provisions of the introduction and with chapter 5 of part II-A of the Polar Code, in addition to any other applicable requirements of this Annex.
- 3 In applying chapter 5 of part II-A of the Polar Code, consideration should be given to the additional guidance in part II-B of the Polar Code.

## Appendix I

**Criteria for the classification of solid bulk cargoes as harmful to the marine environment**

For the purpose of this Annex, cargo residues are considered to be harmful to the marine environment (HME) if they are residues of solid bulk cargoes which are classified according to the criteria of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) meeting the following parameters:\*

- .1 Acute Aquatic Toxicity Category 1; and/or
- .2 Chronic Aquatic Toxicity Category 1 or 2; and/or
- .3 Carcinogenicity<sup>†</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .4 Mutagenicity<sup>†</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .5 Reproductive Toxicity<sup>†</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .6 Specific Target Organ Toxicity Repeated Exposure<sup>†</sup> Category 1 combined with not being rapidly degradable and having high bioaccumulation; and/or
- .7 Solid bulk cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets (this includes materials that are shredded, milled, chopped or macerated or similar materials).

\* The criteria are based on UN GHS. For specific products (e.g. metals and inorganic metal compounds) guidance available in UN GHS, annexes 9 and 10 is essential for proper interpretation of the criteria and classification and should be followed.

<sup>†</sup> Products that are classified for Carcinogenicity, Mutagenicity, Reproductive Toxicity or Specific Target Organ Toxicity Repeated Exposure for oral and dermal hazards or without specification of the exposure route in the hazard statement.

## Appendix II

**Form of Garbage Record Book****GARBAGE RECORD BOOK**

Name of ship . . . . .

Distinctive number or letters . . . . .

IMO Number . . . . .

Period . . . . . from: . . . . . to . . . . .

**1 Introduction**

In accordance with regulation 10 of Annex V of the *International Convention for the Prevention of Pollution from Ships, 1973*, as modified by the Protocol of 1978 (MARPOL), a record is to be kept of each discharge operation or completed incineration. This includes discharges into the sea, to reception facilities, or to other ships, as well as the accidental loss of garbage.

**2 Garbage and garbage management**

Garbage means all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in other Annexes to the present Convention. Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities which involve the transport of fish including shellfish for placement in the aquaculture facility and the transport of harvested fish including shellfish from such facilities to shore for processing.

The Guidelines for the Implementation of MARPOL Annex V should also be referred to for relevant information.



### 3 Description of the garbage

Garbage is to be grouped into categories for the purposes of recording in parts I and II of the Garbage Record Book (or ship's official logbook) as follows:

#### Part I

- A Plastics
- B Food wastes
- C Domestic wastes
- D Cooking oil
- E Incinerator ashes
- F Operational wastes
- G Animal carcasses
- H Fishing gear
- I E-waste

#### Part II

- J Cargo residues (non-HME)
- K Cargo residues (HME)

### 4 Entries in the Garbage Record Book

4.1 Entries in the Garbage Record Book shall be made on each of the following occasions:

4.1.1 When garbage is discharged to a reception facility ashore or to other ships:

- .1 Date and time of discharge
- .2 Port or facility, or name of ship
- .3 Categories of garbage discharged
- .4 Estimated amount discharged for each category in cubic metres
- .5 Signature of officer in charge of the operation.

4.1.2 When garbage is incinerated:

- .1 Date and time of start and stop of incineration
- .2 Position of the ship (latitude and longitude) at the start and stop of incineration
- .3 Categories of garbage incinerated

- .4 Estimated amount incinerated in cubic metres
- .5 Signature of the officer in charge of the operation.

4.1.3 When garbage is discharged into the sea in accordance with regulations 4, 5 or 6 of MARPOL Annex V or chapter 5 of part II-A of the Polar Code:

- .1 Date and time of discharge
- .2 Position of the ship (latitude and longitude). Note: for cargo residue discharges, include discharge start and stop positions.
- .3 Category of garbage discharged
- .4 Estimated amount discharged for each category in cubic metres
- .5 Signature of the officer in charge of the operation.

4.1.4 Accidental or other exceptional discharges or loss of garbage into the sea, including in accordance with regulation 7 of MARPOL Annex V:

- .1 Date and time of occurrence
- .2 Port or position of the ship at time of occurrence (latitude, longitude and water depth if known)
- .3 Categories of garbage discharged or lost
- .4 Estimated amount for each category in cubic metres
- .5 The reason for the discharge or loss and general remarks.

#### 4.2 Amount of garbage

The amount of garbage on board should be estimated in cubic metres, if possible separately according to category. The Garbage Record Book contains many references to estimated amount of garbage. It is recognized that the accuracy of estimating amounts of garbage is left to interpretation. Volume estimates will differ before and after processing. Some processing procedures may not allow for a usable estimate of volume, e.g. the continuous processing of food waste. Such factors should be taken into consideration when making and interpreting entries made in a record.

**RECORD OF GARBAGE DISCHARGES**

**PART I**

For all garbage other than cargo residues as defined in regulation 1.2 (Definitions)

(All ships)

Ship's name .....

Distinctive number or letters .....

IMO number .....

**Garbage categories**

- A Plastics
- B Food wastes
- C Domestic wastes
- D Cooking oil
- E Incinerator ashes
- F Operational wastes
- G Animal Carcasses
- H Fishing gear
- I E-waste

**Discharges under MARPOL Annex V regulations 4 (Discharge of garbage outside special areas), 5 (Special requirements for discharge of garbage from fixed or floating platforms) or 6 (Discharge of garbage within special areas) or chapter 5 of part II-A of the Polar Code**

Date/ time	Position of the ship (latitude/longitude) or port if discharged ashore or name of ship if discharged to another ship	Category	Estimated amount discharged		Estimated amount incinerated (m <sup>3</sup> )	Remarks: (e.g. start/stop time and position of incineration; general remarks)	Certification/ signature
			Into sea (m <sup>3</sup> )	To reception facilities or to another ship (m <sup>3</sup> )			

**Exceptional discharge or loss of garbage under regulation 7 (Exceptions)**

Date/ time	Port or position of the ship (latitude/longitude and water depth if known)	Category	Estimated amount lost or discharged (m <sup>3</sup> )	Remarks on the reason for the discharge or loss and general remarks (e.g. reasonable precautions taken to prevent or minimize such discharge or accidental loss and general remarks)	Certification/ signature

Master's signature.....Date .....

**PART II**

**For all cargo residues as defined in regulation 1.2 (Definitions)**

**(Ships that carry solid bulk cargoes)**

Ship's name .....

Distinctive number or letters .....

IMO number .....

**Garbage categories**

**J** Cargo residues (non-HME)

**K** Cargo residues (HME)

**Discharges under regulations 4 (Discharge of garbage outside special areas) and 6 (Discharge of garbage within special areas)**

Date/ time	Position of the ship (latitude/ longitude/ or port if discharged ashore	Category	Estimated amount discharged		Start and stop positions of the ship for discharges into the sea	Certification/ signature
			Into sea (m <sup>3</sup> )	To reception facilities or to another ship (m <sup>3</sup> )		

Master's signature.....Date .....