LONDON DUMPING CONVENTION: THE FIRST DECADE AND BEYOND

Provisions of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and Decisions Made by the Consultative Meeting of Contracting Parties (1975 - 1989)

Prepared by the IMO Secretariat

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I. INTRODUCTION

1.1 The international legal framework

Between 1950 and the early 1970s it became generally recognized that marine pollution had developed into a serious global environmental problem. Possibly the greatest public exposure during these times was given to marine pollution arising from accidental oil spillages and from operational discharges of oil from ships. As a result a number of multilateral conventions were adopted specifically addressed to these problems*.

Other public concerns were related to the impact of radioactive substances on human health and marine life. Article 24 of the High Seas Convention (adopted in 1958)** calls upon States to "draw up regulations to

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* - International Convention for the Prevention of Pollution of the Sea by Oil, London 1954; amended 1962, 1969 and 1971;

- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels 1969;

- Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil, Bonn 1969;

- International Convention on Civil Liability for Oil Pollution Damage, Brussels 1971;

- International Convention on the Establishment of an International Fund for Oil Pollution Damage, Brussels, 1971.

** - Convention on the High Seas, Geneva, 1958. See also:

- Convention on Third Party Liability in the Field of Nuclear Energy, Paris, 1960;

- Convention on the Liability of Operators of Nuclear Ships, Brussels, 1962;

- Convention on Civil Liability for Nuclear Damage, Vienna, 1963;

- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, Moscow, 1963;

- Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, Brussels, 1971.

prevent pollution of the seas by the discharge of oil from ships or pipelines or resulting from the exploitation and exploration of the seabed and its subsoil". Article 25 of that Convention commits States "to prevent pollution of the seas from the dumping of radioactive waste" and to co-operate in taking measures "for the prevention of pollution ... resulting from any activities with radioactive materials".

In the early 1970s it had also been recognized that the marine environment does not have an unlimited capacity to assimilate the products of man's industrial activities and, in this context, the dumping of wastes at sea as a means of disposal began to attract international attention. Several international conferences were therefore convened in the course of which a number of multilateral conventions on the prevention of marine pollution by dumping at sea were adopted.***

During the past decade international concern has been focused on the pollution of the marine environment from the exploration and exploitation of the sea-bed, from land-based sources and, more recently, through the atmosphere.

1.2 The Stockholm Conference (1972)

Developments since mid-1972 have certainly been influenced by the outcome of the UN Conference on the Human Environment which took place in Stockholm in June 1972 (Stockholm Conference). The Conference adopted a Declaration of the Human Environment which included in Principles 7 and 21 a general obligation of States to preserve the marine environment as follows:

Principle 7

"States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

Principle 21

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."

*** - Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Oslo 1972;

- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 1972.

Principle 7 reflects not only the duty of States to protect the marine environment but also is in effect a definition of marine pollution which had been prepared by the IMCO/FAO/UNESCO/WMO/WHO/IAEA/UN Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP)* which is cited as follows:

> [Pollution is] "the introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea-water, and reduction of amenities."

Conventions on marine pollution adopted prior to 1972 do not include any definition of marine pollution. In legal texts adopted or prepared between 1972 and 1974, the definition of marine pollution is not used as such but it had been implicitly included in the basic obligations for the protection of the marine environment or in other relevant concepts, such as the concept of harmful substances. For example, the London Dumping Convention in Article I requires that Contracting Parties pledge themselves to:

> "take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

The United Nations Convention on the Law of the Sea (UNCLOS) which was adopted in 1982, defines marine pollution in its Article 1, paragraph 1(4) as follows:

> "pollution of the marine environment means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities".

The basic elements of the GESAMP definition, namely human interference with the marine environment and a list of undesirable effects have been included since 1974 in all internationally agreed legal instruments for the prevention and control of marine pollution.

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* The United Nations Environmental Programme (UNEP) which was established by the UN General Assembly pursuant to a recommendation of the Stockholm Conference, joined the group of Sponsoring Organizations of GESAMP at a later stage.
The name of the Inter-Governmental Maritime Consultative Organization (IMCO) was changed in 1982 to the "International Maritime Organization (IMO)"

It should also be noted that whereas in accordance with the definition of GESAMP, undesirable effects caused by human interference with the environment is called "pollution", human activities which do not lead to harmful effects do not fall under the definition of "pollution". These latter activities have been called "contamination".

Principle 21, as adopted by the Stockholm Conference in its first element, is concerned with the right of States to exploit their own resources. While not directly relevant to the preservation of the marine environment, it gives tacit recognition to the fact that anthropogenic factors may result in some alterations to the marine environment but that within certain limits, these may be acceptable. The second element, concerning the responsibility to avoid damage to the environment of other States or of areas beyond the limits of national jurisdiction, is of fundamental importance in terms of ensuring the protection of coastal interests as well as the shared resources of the high seas.

1.3 Forms of marine pollution

International legislation for the prevention of marine pollution has evolved along lines which reflect a generally agreed categorization of the sources of pollution which should be regulated. In general, five sources of marine pollution have been identified as follows:

.1 Land-based sources, i.e. pollution by substances (or energy) entering the marine environment through runoff from land, rivers, pipelines and outfall structures;

.2 Vessel-generated pollution, i.e. pollution caused by operational discharges from ships (e.g. by cleaning of tanks, or deballasting) or resulting from maritime accidents (e.g. following the collision or grounding of vessels);

.3 Pollution by dumping at sea, i.e. pollution caused by the disposal of industrial and municipal wastes at sea from ships which have been loaded with the purpose of dumping or incinerating the material at sea. This includes the dumping at sea of dredged material from dredging vessels and barges;

.4 Pollution from sea-bed activities, i.e. pollution caused by the release of harmful substances directly arising from the exploration, exploitation and associated processing of sea-bed minerals; and

.5 Pollution from or through the atmosphere, i.e. pollution caused by the release of harmful substances (or energy) into the atmosphere as a result of man's activities on land, vessels or aircraft, and which enter the sea through fall-out or co-precipitation.

1.4 Outline of International Conventions for the prevention and control of marine pollution

1.4.1 Global agreements

Global rules, standards and recommended practices and procedures regarding the protection of the marine environment from operational vessel-source pollution have been mentioned in section 1.1 above. With regard to accidental pollution, all internationally agreed provisions for the safety of navigation, such as the International Convention on the Safety of Life at Sea, 1974 (SOLAS 74), have significance for the protection of the marine environment. In 1978 the scope of both SOLAS 74 and the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73) have been expanded by protocols adopted by the International Conference on Tanker Safety and Pollution Prevention, with a view to strengthening requirements related to the protection of the sea from accidental pollution.

A list of global Conventions for the protection of the marine environment established since 1972 is as follows:

- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (the London Dumping Convention).

- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).

- Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil, 1973.

- Protocol of 1976 to the International Convention on Civil Liability for Oil Pollution Damage, 1969.

- Protocol of 1976 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971.

- Convention on Long-Range Transboundary Air Pollution, 1979.

- United Nations Convention on the Law of the Sea, 1982.

- Protocol of 1984 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969.

- Protocol of 1984 to amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971.

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989.

Although the need to take measures for the prevention of marine pollution from the major sources has been recognized for many years, global rules, standards and procedures for the prevention and control of marine pollution from land-based sources, from the atmosphere or from sea-bed activities have not yet been developed. The Geneva Convention on the High Seas, 1958, already requests States to draw up regulations to prevent pollution of the seas resulting from the exploitation and exploration of the sea-bed and its subsoil. The recently adopted United Nations Convention on the Law of the Sea (UNCLOS) 1982 provides a broad outline for action concerning the prevention of marine pollution from all sources at the global level, e.g. various articles of the Convention request States to act especially through competent international organizations or diplomatic conferences for the establishing of global rules and standards to prevent, reduce and control marine pollution from various sources, including land-based sources, the atmosphere and sea-bed activities. Another initiative aimed at global control of marine pollution was taken by UNEP in 1983 with the convening of the first session of an ad hoc Working Group of Experts on the Protection of the Marine Environment against Pollution from Land-based Sources. This effort resulted in the adoption of internationally accepted guidelines on the Protection of the Marine Environment from Land-based Sources, 1985 (Montreal Guidelines).

1.4.2 Regional agreements

Several of the early global conventions (e.g. the London Dumping Convention) express the necessity that States with common interests to protect the marine environment in a given geographical area should enter into regional agreements consistent with global conventions, taking into account regional features and needs. Preparatory work in the early seventies aimed at the establishment of regional conventions was supported by decisions made by the Stockholm Conference in 1972. Increased activities in the protection of regional sea areas since 1972 are also due to the establishment in that year of the United Nations Environment Programme (UNEP). UNEP has developed action plans for several regional seas and its first major one focused on the protection of the Mediterranean Sea. The Regional Seas Programme of UNEP has since been expanded and in 1989 it covered eleven different regions. Of these regions, eight have adopted Conventions. These are:

Mediterranean Sea

- Convention for the Protection of the Mediterranean Sea against Pollution, 1976 (Barcelona Convention), with the following Protocols:
  - Protocol concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency, 1976;
  - Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, 1976;
  - Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, Athens, 1980; and
  - Protocol concerning Mediterranean Specially Protected Areas, Geneva, 1982.

Gulf Area

- Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, 1978 (Kuwait Convention), with the following Protocol:

  - Protocol concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency, 1978.

West and Central Africa

- Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 1981 (Abidjan Convention), with the following Protocol:

  - Protocol concerning Co-operation in Combating Pollution in Cases of Emergency, 1981.

East Africa

- Convention for the Protection, Management and Development of the Marine Coastal Environment of the Eastern African Region, 1985 (Nairobi Convention). with the following Protocols:

  - Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Regions, 1985; and

  - Protocol concerning Co-operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region, 1985.

South-East Pacific

- Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, 1981 (Lima Convention), with the following Protocols:

  - Agreement on Regional Co-operation in Combating Pollution of the South-East Pacific by Oil and Other Harmful Substances in Cases of Emergency, Lima, 1981; and

  - Protocol for the Protection of the South-East Pacific Against Pollution from Land-based Sources, Quito, 1981.

  - Protocol for the Protection of the South East Pacific against Radioactive Pollution, Paipa, 1989.

Red Sea and Gulf of Aden

- Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment, 1982 (Jeddah Convention), with the following Protocol:

  - Protocol Concerning Regional Co-operation in Combating Pollution by Oil and other Harmful Substances in Cases of Emergency, 1982.

Caribbean Region

- Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, 1983 (Cartagena Convention), with the following Protocol:

  - Protocol concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region, 1983.

South Pacific

- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1986 (Noumea Convention), with the following Protocols:

  - Protocol for the Prevention of Pollution of the South Pacific Region by Dumping, 1986; and

  - Protocol concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region, 1986.

Regional legal instruments which have been established since 1972 in Europe independently from UNEP's Regional Seas Programme are:

North East Atlantic and North Sea

- Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, 1972 (Oslo Convention); and

- Convention for the Prevention of Marine Pollution from Land-based Sources, 1974 (Paris Convention).

Baltic Sea

- Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention);

Scandinavian Waters

- Convention on the Protection of the Environment between Denmark, Finland, Norway and Sweden (with Protocol), 1974 (Stockholm Convention).

- Agreement between Denmark, Finland, Norway and Sweden concerning Co-operation in Measures to Deal with Pollution of the Sea by Oil, Copenhagen, 1971.

North Sea

- Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil, Bonn 1969; and

- Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances, 1983.

It is remarkable that beside the Paris Convention and the Helsinki Convention, which contain provisions for the protection of the marine environment from land-based sources, only two of the eight UNEP Regional Seas Conventions have been supplemented by protocols on the prevention and control of marine pollution by land-based sources. Likewise, no international agreement regulates pollution from land-based sources in the West Atlantic and the whole of the North Pacific.

It is also disappointing that beside the North Sea and the Baltic, only two regional seas are protected by dumping protocols: the Mediterranean and the South Pacific. This is probably due to the existence of the London Dumping Convention being considered as the appropriate instrument in controlling and regulating waste disposal in the various regions. However, it should be recalled that the London Dumping Convention itself expresses the need that States with common interests to protect the marine environment in a given geographical area enter into regional agreements.

The reluctance to develop and adopt legally binding protocols for the prevention and control of marine pollution from land-based sources should be considered in the light of the far-reaching economic implications they would have on the industries, municipalities, and agriculture of the prospective parties. This could also explain why the establishment of a globally applicable and all-embracing convention on the protection of the marine environment from land-based sources may still not be possible at this stage, i.e. taking into account the many different stages of development (industrialization, population, science and technology) in the various regions of the world.

With regard to atmospheric sources, control measures covering the Baltic Sea are contained in the Helsinki Convention. Within the framework of the Paris Convention, relevant measures have also been taken for the protection of the North East Atlantic including the North Sea area. The lack of internationally adopted protection measures within other regions again reflects the implications these would have for industry, particularly in less developed countries.

An International Seabed Authority will be established under the Convention on the Law of the Sea and environmental guidelines on seabed mining are being developed as part of the preparatory process. It should be noted that the International Seabed Authority would not have jurisdiction over all marine waters and as such there may be areas warranting an additional environmental control regime.

1.5 Co-operation and future developments

The need for close co-operation between global and regional agreements concerned with the protection of the marine environment is clearly identified in the Preamble and Articles of the London Dumping Convention. For the administration of these conventions there are likewise a number of institutions which are either embodied in the United Nations system, regional economic organizations or independent regional secretariats. It is an important and necessary function of such bodies to keep under continuous review the progress made in achieving their respective objectives and to be

responsive to technological developments which alter the pattern or nature of pollutant inputs to the marine environment. Changes must also be anticipated in political, social and economic factors which, in turn, may influence the attitudes and approaches of Member States towards environmental management.

At a meeting of representatives of the London Dumping Convention, the Oslo Commission and the Paris Commission, the Helsinki Commission and UNEP, initiated by the Consultative Meeting of the London Dumping Convention and held in October 1981, agreement was reached on the role and long-term objectives of the Convention. The agreement emphasized its pivotal nature in the global control of dumping, transfer of information on alternative methods of waste disposal and the regulation of wastes that contribute to the overloading of the assimilative capacity of the oceans. In response to this the Consultative Meeting established a small intersessional Task Team to outline the long-term strategies and objectives of the London Dumping Convention to the year 2000. The report of the Task Team (hereafter referred to as Task Team 2000) was approved by the Consultative Meeting in 1984 and it was agreed to use the report and its recommendations in planning future work programmes. The report clarifies several of the more controversial aspects of the London Dumping Convention and provides valuable guidance on the priorities for future work. For these reasons it has been most influential in the preparation of certain parts of this document and references to the Task Team 2000 recommendations will be found at various points throughout the text.

By way of a brief summary, consensus has been reached on the following key recommendations of the Task Team 2000 report and subsequent deliberations at Consultative Meetings:

- the Consultative Meeting provides an effective forum for a continuing dialogue between the Contracting Parties with different philosophies on disposal at sea, namely those wishing to eliminate all dumping at sea and those seeking to limit ocean disposal to certain wastes and other matter that do not result in harmful effects. The common goal agreed to is eliminating dumping of all hazardous wastes posing an unacceptable risk which can be achieved through the continuing reduction of hazardous wastes and stricter compliance and better application of the Annexes;

- Contracting Parties have the responsibility under Article I of the Convention to promote the reduction of marine pollution from all sources and the linkages between the Convention and other organizations dealing with marine pollution (in particular the United Nations Environment Programme (UNEP)) should be strengthened;

- the future development of population and industrial expansion will lead to an increasing pressure on the sea as a source of living and non-living resources, energy, transportation and receptacle for wastes from all sources. A comprehensive waste management strategy including co-operation at international levels will be increasingly important;

- no disposal (burial) into the sea-bed of hazardous wastes such as high-level radioactive wastes should take place until it is proved to be technically feasible and environmentally acceptable, including a determination that such wastes can be effectively isolated from the marine environment, and a regulatory mechanism is elaborated under the Convention;

- international co-operation at scientific and technical levels is very important for exploring alternative disposal routes (particularly recycling) and in the development and wider use of improved treatment techniques;

- within the regional seas activities of UNEP, the preparation of dumping protocols should be encouraged and based on the London Dumping Convention;

- problems faced by developing countries with regard to their ability to comply fully with the requirements of the Convention, due to a lack of adequate technology and resources, could be helped through assistance provided in accordance with Article IX;

- increased membership in the Convention could be encouraged by more intensive exchange of information, by the holding of symposia on selected topics and by increased dialogue amongst representatives of the regional and global bodies;

- the harmonization of control procedures and principles between the London Dumping Convention and other global Conventions dealing with marine pollution needs to be ensured; and

- the Annexes to the Convention should be kept under continuing review so as to ensure that they are current, clearly understood, scientifically based and reflect established principles of waste management.

The Twelfth Consultative Meeting in 1989 agreed to re-examine the long-term strategy for the London Dumping Convention. A follow-up report to the Task Team 2000 Report on a Long-Term Strategy for the Convention will be submitted to the Thirteenth Consultative Meeting which will consider ways to ensure the effective implementation of the London Dumping Convention and to decide upon any possible new future directions. In this connection, the United Nations Conference on Environment and Development, 1992, will address the global prevention and control of marine pollution, and the Consultative Meeting has decided to report on the existing and future role of the London Dumping Convention in the field of marine pollution control to that Conference.

1.6 What is dumped - and the problems involved

The most important materials dumped at sea involve the following:

Dredged material: About 80-90 per cent of the material dumped at sea results from dredging. Between 1980 and 1985 the reports provided to IMO show an

average of 215 million tonnes of dredged material dumped at sea annually. Some yearly fluctuations in the amount of dredged material dumped at sea occur due to the natural variation in the maintenance and new works dredging requirements in support of shipping. Of the total material dredged, probably two-thirds is associated with operations to keep harbours, rivers and other waterways from silting up. The other third involves new works. Future dredging operations and the requirement for ocean disposal are expected to follow current trends.

Although the amount of dredged material dumped at sea appears large, in fact it represents only a fraction of the total amount of material dredged each year. According to the International Association of Ports and Harbors (IAPH) only 20-22 per cent of dredged material is disposed of at sea. The IAPH provides periodic global surveys of dredged material disposal which complement the dumping reports submitted to the LDC Secretariat.

Approximately 10 per cent of sediments dredged from harbours, shipping lanes, estuaries, coastal waters, etc., are heavily contaminated from a variety of sources including shipping, industrial and municipal discharges, and land runoff. Typical contaminants include heavy metals, such as cadmium, mercury, chromium and others; hydrocarbons, such as oil; organochlorines such as pesticides; nutrients such as nitrogen and phosphorous; and residues from antifouling paints, such as organotin compounds. Disposal at sea of these materials carries the possibility of acute or chronic toxic effects on marine organisms, and potential contamination of human food sources.

Disposal at sea of uncontaminated dredged material can also cause major physical impacts. Gravel, for example, is required by spawning fish such as herring and is the natural habitat of crustacea such as lobsters. Both will be adversely affected if the gravel is covered by other types of sediment. Careful dumpsite selection is therefore very important to reduce this type of resource-use conflict.

Industrial wastes: Although most of the material dumped at sea results from dredging, several million tonnes of industrial wastes also find their way into the sea each year as a result of disposal at sea. Most of the industrial wastes consist of acid and alkaline waste, scrap metal waste, fish processing waste, coal ash and flue gas desulphurization sludges. There has been a steady decline in the amount of chemical waste dumped at sea by the developed world, however it is difficult to predict the extent of future pressures to use disposal at sea from new waste generators. Between 1980 and 1985 the reports submitted to IMO from the developed countries show that the largest amount of industrial wastes dumped at sea was 17 million tonnes in 1982 and the smallest amount dumped at sea was 6 million tonnes in 1985.

The incineration of hazardous liquid wastes at sea and the sea disposal of low-level radioactive wastes are dealt with separately below.

Sewage sludge: The sludge resulting from sewage treatment operations can be used beneficially as fertilizer on agricultural land or for land reclamation, particularly if it is not contaminated with high levels of metals, oils and organic chemicals. However, in some cases it can be more economic and

environmentally preferable to dump it at sea rather than on land. The main known dumping areas for this practice are the North Sea and parts of the Irish Sea and the New York Bight. Disposal of sewage sludge in the New York Bight will be phased out from 1991 and as soon as possible in the North Sea, but not later than 1998.

Municipal sewage sludge normally does not contain contaminants in large quantities, but excessive dumping may still have harmful effects such as eutrophication and human health risks from the presence of pathogens. Between 1980 and 1985 the reports from the developed countries to IMO show an average of 15 million tonnes of sewage sludge dumped at sea annually. Although there is a gradual decrease in sewage sludge disposal at sea, it may continue to be the best environmental option for those countries which currently cannot afford advanced waste treatment methods and recycling facilities or do not have land-based sites that are environmentally preferable.

Problems involved: These three groups comprise most of the waste material currently dumped at sea. The key environmental problems associated with disposal in this manner are:

- human health risks from the presence of pathogens;
- eutrophication due to nutrients and organics;
- toxic effects on marine organisms and/or man, caused by various chemicals; and
- resource-use conflicts with other legitimate uses of the sea such as fishing (including aquaculture), and recreation.

Broadly speaking the physical impacts of sea disposal (which can include burial of organisms, increased suspended solids, habitat alteration and possible effects on other uses of the sea) can be largely minimized through proper dumpsite location and proper timing of operations to avoid critical life stages such as migration periods.

The chemical and biological impacts of waste disposal at sea (which includes the possibility of chronic or acute toxic effects on man and marine organisms, and potential contamination of human food sources) is more difficult to manage. These possible impacts require special attention to the practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the matter less harmful for dumping at sea.

It is also important to note that the introduction of contaminants into the sea from sea disposal operations is rather small compared with other sources of marine pollution (e.g., through the atmosphere and land-based inputs through rivers or directly from land). Nevertheless the danger from disposal at sea is there. In Japan, for example, at least five cases have been recorded of poisoning resulting from heavy metals entering the food chain through marine life. Perhaps the most famous of these occurred at Minamata during the 1950s when thousands of people were affected by mercury poisoning

resulting in terrible deformities to unborn children. Other incidents involved chromium and cadmium poisoning. The latter can result in bones becoming so brittle that they splinter. An idea of the agony caused can be gained from the Japanese name for the disease - "Itai, itai" (It hurts, it hurts...).

Incineration at sea: The incineration of noxious liquid wastes at sea has been used as a means of disposing of certain chemical by-products which are particularly hazardous since 1969. Between 1980 and 1985 the reports to IMO show an average of 100,000 tonnes of hazardous waste incinerated at sea annually, mainly in the North Sea. Please refer to section 5.5 for a more detailed explanation of recent developments pertaining to both the short and long-term future of incineration at sea and the guidance provided by the Convention on this waste disposal practice.

Radioactive wastes: A number of countries have dumped low-level radioactive wastes at sea since 1946. Between 1946 and 1967, the USA dumped approximately 4,000 terabecquerels (TBq)* of radioactive waste in about 90,000 containers of various types in the Pacific and Atlantic Oceans and the Gulf of Mexico. Between 1949 and 1982 several West European countries (principally the UK but including Belgium, the Netherlands and Switzerland) dumped about 54,000 TBq of radioactivity in some 140,000 tonnes of packaged waste at ten sites in the north-east Atlantic but predominantly in the vicinity of latitude 46°N and longitude 17°W. Comparatively small dumping operations were also carried out by Japan between 1955 and 1968 and the Republic of Korea between 1968 and 1972.

The dumped wastes come from activities related to nuclear power production and from industrial, medical and research uses of radioisotopes. The type of waste involved is similar to that arising in non-nuclear parts of an industrial economy (including items such as broken machinery and old clothing), but with the difference that it is contaminated by radioactive materials and so requires special handling, treatment and disposal. The waste has typically been incorporated into concrete-filled drums designed to provide shielding and containment of the waste prior to dumping and to ensure that the waste reaches the seafloor intact. Please refer to section 5.4 for a more detailed explanation of the current moratorium on the sea disposal of low-level radioactive waste.

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* 1 TBq = one trillion (10^{12}) Bq, where 1Bq (Becquerel) arises from one nuclear disintegration per second

2. THE LONDON DUMPING CONVENTION: ITS ORIGINS AND SCOPE

2.1 Preparation and adoption of the Convention

The Preparatory Committee for the Stockholm Conference in 1971 established an Inter-Governmental Working Group on Marine Pollution (IWGMP), which at its first meeting in London in June 1971 recommended that an international agreement regulating the dumping at sea of wastes transported from land should be prepared. The delegation of the United States submitted a draft of a Convention for the Regulation of Transportation for Ocean Dumping and member States of the United Nations were invited to submit written comments.

The second meeting of the IWGMP was convened in Ottawa in November 1971 and a number of Draft Articles on Ocean Dumping were approved. With a view to promoting the preparation of a complete draft text of a Convention on Ocean Dumping the Government of Iceland organized an Inter-Governmental Meeting on Ocean Dumping which was held in Reykjavik in April 1972. In Reykjavik a resolution was adopted requesting the IWGMP to submit the draft text and report of the Reykjavik Meeting to the Stockholm Conference for further consideration.

In an effort to resolve outstanding items from the Reykjavik Meeting, the Government of the United Kingdom convened an additional Inter-Governmental Meeting on Ocean Dumping at the end of May 1972. The results of these deliberations were sent forward to the Stockholm Conference as a supplement to the text prepared at the Reykjavik Meeting.

During the Conference on the Human Environment in Stockholm in 1972 the draft texts were considered. The Conference recommended that governments ensure that "ocean dumping by their nationals anywhere, or by any person in areas under their jurisdiction, is controlled, and the Governments continue to work towards the completion of, and bringing into force as soon as possible of, an over-all instrument for the control of ocean dumping, as well as needed regional agreements within the framework of this instrument, in particular for enclosed and semi-enclosed sea areas, which are more at risk from pollution". Pursuant to this recommendation the Government of the United Kingdom, in consultation with the Secretary-General of the United Nations, convened in London an Inter-Governmental Conference on the Convention on the Dumping of Wastes at Sea, from 30 October to 13 November 1972, which adopted the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the so-called London Dumping Convention).

The Convention entered into force on 30 August 1975, 30 days after the deposit of the fifteenth instrument of ratification or accession. In accordance with Article XIV of the Convention, the United Kingdom Government convened the first meeting of Contracting Parties in London from 17 to 19 December 1975. The Contracting Parties agreed to designate the Inter-Governmental Maritime Consultative Organization (IMCO)* to be responsible for the Secretariat duties in relation to the Convention and requested the Organization to assume and discharge those duties forthwith.

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* On 21 May 1982 the name of the Organization was changed to the International Maritime Organization (IMO).

2.2 Status of the Convention

As at 31 July 1990, sixty-five States have ratified or acceded to the Convention in accordance with the procedures described in Section 4.8. In addition, seven inter-governmental organizations have observer status.

A list of Contracting Parties and the status of amendments to the Convention are set out at annex 1 (LDC 13/2). International organizations (inter-governmental and non-governmental) which by 31 July 1990 have been granted observership status are set out at annex 2.

2.3 General provisions

The Convention starts with general provisions set out in Articles I and II.

Article I states that:

> "Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment, and pledge themselves especially to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

Article II provides that:

> "Contracting Parties shall, as provided for in the following Articles, take effective measures individually, according to their scientific, technical and economic capabilities, and collectively to prevent marine pollution caused by dumping and shall harmonize their policies in this regard."

There has been some criticism with regard to the inclusion of the term "all practicable steps" in Article I, and the sentence "according to their scientific, technical and economical capabilities" in Article II, since both points may give the impression of weakening the Convention. Both phrases were added to the text based on proposals made by developing countries wishing to ensure the needed flexibility.

2.4 Definitions and areas of application

Article III defines the area of application of the Convention and what is meant by dumping, including various other terms used subsequently in relation to the act of dumping and licensing of dumping. The Convention is universal and applies to both the territorial sea and the high sea. The definition of "sea" contained in Article III includes all marine waters other than internal waters of States. This means in effect that the Convention applies to all sea areas beyond the baseline defining the outer limits of the internal waters of States.

The Eleventh Consultative Meeting further concluded that a Party could apply the Convention to dumping not only in its territorial waters but also in the Exclusive Economic Zone (EEZ) and onto its continental shelf (LDC 11/14, paragraph 5.4).

2.4.1 Dumping

The definition of dumping stipulates that dumping means any deliberate disposal at sea of material and substances of any kind, form or description from vessels, aircraft, platforms or other man-made structures, as well as the disposal of vessels, aircraft, platforms or other man-made structures themselves. In its second part the definition expresses what is not meant by dumping, namely the disposal of wastes or other matter derived from the normal operation of vessels, aircraft, platforms or other man-made structures (operational discharges). It further excludes the placement of matter for a purpose other than mere disposal (e.g. scientific research equipment, aquaculture, etc.) and the disposal of wastes or other matter derived from sea-bed activities (e.g. exploration and exploitation of mineral resources).

With regard to the use of the sea-bed for the deposition of certain hazardous wastes, in particular high-level radioactive wastes, the Seventh Consultative Meeting convened a special meeting of legal experts to study the applicability of the Convention to this form of disposal. The Eighth Consultative Meeting agreed (subsequently confirmed by the Tenth Consultative Meeting) that no such disposal should be undertaken by Contracting Parties unless, and until, the disposal (burial) into the sea-bed is proven to be technically feasible and environmentally acceptable, and an adequate control mechanism has been established by the Consultative Meeting.

Interpretations of the definition of dumping with respect to sovereign immunity and disposal of offshore installations and structures are addressed in sections 4.3.5 and 5.2 respectively.

2.4.2 Incineration at sea

Incineration is the combustion of waste for the purpose of its destruction and is used as a method of waste disposal at sea. Although this disposal method had not originally been mentioned in the Convention, Contracting Parties felt it necessary to adopt specific rules for the control of incineration at sea by adding a new paragraph to Annexes I and II and an Addendum to Annex I to the Convention (also see section 5.5). In this addendum incineration facilities and incineration at sea are defined as follows:

> "Marine incineration facility means a vessel, platform, or other man-made structure operating for the purpose of incineration at sea. Incineration at sea means the deliberate combustion of wastes or other matter on marine incineration facilities for the purpose of their thermal destruction. Activities incidental to the normal operation of vessels, platforms or other man-made structures are excluded from the scope of this definition."

2.4.3 Wastes and other matter

"Wastes or other matter" are defined in Article III as "material and substance of any kind, form or description".

2.4.4 Other sources of pollution

Although the main purpose of the Convention is the prevention and control of marine pollution from disposal at sea, Contracting Parties by Article I have also agreed to individually and collectively promote the effective control of all sources of pollution of the marine environment. Contracting Parties by Article XII further pledge themselves to promote measures to protect the marine environment against pollution caused by substances and wastes derived from all other sources.

3. BASIC PROVISIONS OF THE CONVENTION

3.1 General constraints on dumping

The basic rules of the Convention are included in Article IV which contains a general prohibition against dumping of any "wastes or other matter in whatever form or condition except as otherwise specified". Article IV in its second part referring to specific substances and types of wastes or other matter:

- expresses a complete prohibition of the dumping of substances listed in Annex I ("black list");
- requests for the dumping of substances listed in Annex II ("grey list") the issue of a prior "special permit" (defined in Article III as a "permission granted specifically on application in advance ..."); and
- requests for the dumping of all other substances a prior "general permit" (defined in Article III as a "permission granted in advance ...").

In accordance with Article VI special and general permits shall be granted by an appropriate authority or authorities in accordance with detailed criteria which are listed in Annex III to the Convention.

Stricter measures

The Convention very clearly states that Contracting Parties to the Convention by their national laws may take more stringent measures than those provided by the Convention, in particular with regard to the complete prohibition of dumping certain substances. Article IV provides that a Contracting Party may prohibit, insofar as that Party is concerned, the dumping of wastes or other matter not mentioned in Annex I of the Convention. Articles VI(3) and VII(5) address further provisions a Contracting Party may invoke with respect to additional factors to take into account when issuing permits (Annex III) and any other measures to prevent dumping at sea.

3.2 Lists of substances contained in the Annexes to the Convention

Black list (Annex I)

Annex I, the so-called "black list", contains substances which at the time of drafting the Convention were considered as "highly hazardous" substances. Annex I reads as follows:

"1. Organohalogen compounds.

2. Mercury and mercury compounds.

3. Cadmium and cadmium compounds.

4. Persistent plastics and other persistent synthetic materials, for example netting and ropes, which may float or may remain in suspension in the sea in such a manner as to interfere materially with fishing, navigation or other legitimate uses of the sea.

5. Crude oil and its wastes, refined petroleum products, petroleum distillate residues, and any mixtures containing any of these, taken on board for the purpose of dumping*.

6. High-level radioactive wastes or other high-level radioactive matter defined on public health, biological or other grounds, by the competent international body in this field, at present the International Atomic Energy Agency, as unsuitable for dumping at sea.

7. Materials in whatever form (e.g. solids, liquids, semi-liquids, gases or in a living state produced for biological and chemical warfare.

8. The preceding paragraphs of this Annex do not apply to substances which are rapidly rendered harmless by physical, chemical or biological processes in the sea provided that they do not

(i) make edible marine organisms unpalatable, or

(ii) endanger human health or that of domestic animals.

The consultative procedure provided for under Article XIV should be followed by a Party if there is doubt about the harmlessness of the substance.

9. This Annex does not apply to wastes or other materials (e.g. sewage sludge and dredged material) containing the matters referred to in paragraphs 1-5 above as trace contaminants. Such wastes shall be subject to the provisions of Annexes II and III as appropriate.

10. Paragraphs 1 and 5 of this Annex do not apply to the disposal of wastes or other matter referred to in these paragraphs by means of incineration at sea. Incineration of such wastes or other matter at sea requires a prior special permit. In the issue of special permits for incineration the Contracting Parties shall apply the Regulations for the Control of Incineration of Wastes and Other Matter at Sea set forth in the Addendum to this Annex (which shall constitute an integral part of this Annex) and take full account of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea adopted by the Contracting Parties in consultation."**.

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* Originally: "Crude oil, fuel oil, heavy diesel oil and lubricating oil, hydraulic fluids, and any mixtures containing any of these, taken on board for the purpose of dumping."
The Fifth Consultative Meeting in 1980 amended the text of this entry.

** Paragraph 10 was not included in the original Convention. The Third Consultative Meeting of Contracting Parties adopted the addition of paragraph 10 to Annex I.

Grey list (Annex II)

Annex II, the so-called "grey list", contains the second category of substances and materials regulated under the London Dumping Convention, requiring special care, i.e. the issue of "special permits" for dumping as follows:

"A. Wastes containing significant amounts of matters listed below:

- arsenic
- lead
- copper) and their compounds
- zinc)
- organosilicon compounds
- cyanides
- fluorides
- pesticides and their by-products not covered in Annex I

B. In the issue of permits for the dumping of large quantities of acids and alkalis, consideration shall be given to the possible presence in such wastes of the substances listed in paragraph A and to the following additional substances:

- beryllium)
- chromium) and their compounds
- nickel)
- vanadium)

C. Containers, scrap metal and other bulky wastes liable to sink to the sea bottom which may present a serious obstacle to fishing or navigation.

D. Radioactive wastes or other radioactive matter not included in Annex I. In the issue of permits for the dumping of this matter, the Contracting Parties should take full account of the recommendations of the competent international body in this field, at present the International Atomic Energy Agency.

E. In the issue of special permits for the incineration of substances and materials listed in this Annex, the Contracting Parties shall apply the Regulations for the Control of Incineration of Wastes and Other Matter at Sea set forth in the Addendum to Annex I and take full account of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea adopted by the Contracting Parties in consultation, to the extent specified in these Regulations and Guidelines*.

F. Substances which, though of a non-toxic nature, may become harmful due to the quantities in which they are dumped, or which are liable to seriously reduce amenities"**.

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* Paragraph E was included in Annex II by the Third Consultative Meeting of Contracting Parties in 1978.

** Paragraph F was included in Annex II by the Fifth Consultative Meeting of Contracting Parties in 1980.

White list (Annex III)

All substances or materials not mentioned in Annexes I and II of the Convention fall in the third category under which they need a "prior general permit" if dumped at sea. In this case, strictly speaking, there is no list of substances or other matter but instead a list of factors to evaluate whether or not a permit to dump at sea should be issued is contained in Annex III to the Convention (also see section 4.2.1). More specifically, the purpose of Annex III can be viewed as follows:

- to decide whether an application for sea disposal should be pursued in the light of the availability of land-based disposal or treatment methods;
- to select a sea disposal site, including the choice and collection of relevant scientific data to assess the potential hazards to human health, harm to living resources and marine life, damage to amenities or interference with other legitimate uses of the sea;
- to choose appropriate disposal methods and conditions; and
- to develop an appropriate monitoring programme.

3.3 Definition and interpretation of terms contained in Annexes I and II

Rapidly rendered harmless (Annex I, paragraph 8) and trace contaminants (Annex I, paragraph 9)

In Annex I exemptions are set out with regard to those substances which are "rapidly rendered harmless at sea" or which are contained only as "trace contaminants" in otherwise acceptable wastes. A detailed interpretation of these terms is considered in sections 4.3.3 and 4.3.4 of this document.

Special care (in relation to Annex II)

All of the substances and wastes listed in Annex II require "special care" if and when they are to be dumped at sea. While this requirement is generally interpreted as the mandatory issuance of special permits (as provided for under Article IV(1)(b)), preceded by careful consideration of all factors listed in Annex III (as required by Article IV(2)), it has become clear from recent discussions among Contracting Parties that it may also imply the use of certain dumping procedures and techniques which can mitigate the potentially harmful effects of Annex II substances in particular circumstances. Thus, apart from the administrative connotation which "special care" conveys, the term may have equally important and very practical implications. In the latter connection, the Consultative Meeting has recognized the value of techniques such as capping for contaminated dredged material.

Significant amounts

In Annex II certain substances fall under the "special permits" provision only if they are contained in wastes in "significant amounts". The interpretation of "significant amounts" was one of the first tasks which the Consultative Meeting undertook to consider. The First Consultative Meeting agreed on an interim interpretation which determined that a "significant amount" of a substance contained in a waste shall mean 0.1% or more by weight of the waste to be dumped at sea. The Consultative Meeting, however, agreed that this interpretation should be reviewed in the light of experience and, as a result, the Eighth Consultative Meeting revised the interim interpretation of "significant amounts" to mean:

Pesticides and their by-products not covered by Annex I and lead and lead compounds:	0.05% or more by weight.
All other substances in Annex II, paragraph A:	0.1% or more by weight.

Throughout the debate on this subject many Contracting Parties have expressed the view that the interim definitions are too arbitrary and have proposed that the term "significant amounts" would be better defined by way of results of tests designed to establish the environmental impact in each specific case. This would take into account quantities, concentrations, and the specific characteristics of the receiving area.

In accordance with Resolution LDC.27(10), the Scientific Group has established an ad hoc working group to carry out a fundamental review of the operational procedures of the Convention with the ultimate goal of eliminating certain inconsistencies and ambiguities from the existing procedures, overcoming difficulties caused by terminology and generally improving the regulation of dumping within an holistic, waste management framework.

Radioactive wastes

Pursuant to the requirement of the London Dumping Convention, the International Atomic Energy Agency (IAEA) is the competent international body with the responsibility for defining high-level radioactive wastes or other high-level radioactive matter which is unsuitable for dumping at sea (see Annex I to the Convention), and for making recommendations about the issue of special permits for dumping radioactive waste or other radioactive matter (see Annex II to the Convention). The IAEA established a provisional Definition and Recommendations in 1974, a revised version in 1978 and a second revised Definition and Recommendations in 1985 (also refer to section 5.4).

3.4 Criteria for the allocation of substances to the Annexes

The Convention originally did not include any specific criteria for the allocation of materials to either Annex I or Annex II and some of the substances were included on the basis of limited scientific evidence. It was subsequently agreed that the properties of a substance to be taken primarily

into account when being considered for inclusion in the Annexes were its toxicity, persistence and bioaccumulation potential as well as the possible interference with legitimate uses of the sea. Substances exhibiting three of these properties would be considered candidates to be listed in Annex I and substances considered for inclusion in Annex II would be those which exhibit one or more of these properties. Protracted and inconclusive discussions regarding the status within the Annexes of certain classes of substances, notably lead and lead compounds, and organosilicons clearly indicated that even these criteria were not defined with sufficient clarity.

At the Eighth Consultative Meeting it was agreed to convene an intersessional group of experts to examine the allocation of substances to and between the Annexes of the Convention. The expert group in its report included a comprehensive analysis of the aims and scope of the Convention, endorsed the definition of pollution provided by GESAMP (see section 1.1) with a minor addition, supported the view that the purpose of the Annexes was to establish the scientific and technical framework needed to achieve the goals of the Convention, and delineated the criteria for annexation of a substance and the criteria for selecting between Annexes I and II. These criteria are briefly described below.

Annexation

A decision to include a substance in the Annexes should be preceded by a risk evaluation process having three components; these are the evaluation of hazard potential, the evaluation of environmental exposure and the formulation of conclusions on the potential scale of effects. With regard to the evaluation of hazard potential it is important that toxicity to man, domestic animals and marine mammals, carcinogenicity and mutagenicity, and ability to interfere with other legitimate uses of the sea, should be added to the original three factors of persistence, toxicity (to marine life) and bioaccumulation potential. Substances should be allocated to the Annexes if they possess any combination of these properties, if they may result in significant environmental exposure, and if they are, or are proposed to be dumped at sea.

Annex I

Annex I substances are those which, as a result of being dumped, will or may contribute significantly to environmental exposure on a wide scale, extending far beyond the original location and time of disposal. They will also result in significant adverse environmental effects. Such substances will have in common a high degree of persistence coupled with at least one of the following properties:

- the ability to accumulate to levels significant in terms of toxicity to marine organisms, to domestic animals or to man;
- carcinogenic or mutagenic properties to domestic animals or man;
- the ability to cause a high degree of interference with fisheries, amenities or other legitimate uses of the sea.

Annex II

Annex II substances are those considered suitable for annexation which are not allocated to Annex I.

The Ninth Consultative Meeting adopted Resolution LDC.19(9) on Criteria for the Allocation of Substances to Annexes together with guidelines thereto and these were subsequently amended at the Eleventh Consultative Meeting in Resolution LDC.31(11) and shown at annex 3.

3.5 List of hazardous substances

In its terms of reference the Scientific Group on Dumping has a standing request to prepare and maintain a list of hazardous substances or groups of substances to which particular attention should be paid and, when sufficient scientific evidence has accumulated to warrant amendments to the Annexes to the Convention, to prepare recommendations for such amendments. The Fifth Consultative Meeting (LDC V/12, Annex 4) adopted a "Procedure and Method of Approach for Preparing and Maintaining a List of Hazardous Substances or Groups of Substances" which is shown at annex 4 to this document.

Tributyltin (TBT) compounds

In this connection the Scientific Group has been requested to consider the need to include TBT compounds in the Annexes. While its toxicity to marine organisms was recognized, the Scientific Group at its eleventh meeting did not consider it to be a potential candidate for dumping at sea in any substantive amounts and therefore saw no need to recommend listing it in Annex I at that time. However, it was acknowledged that organotin compounds derived from anti-fouling paints may accumulate in sediments, and that dredged material from areas around shipyards, dockings and marinas may contain high levels of these compounds which could enter the sea through dumping. The Scientific Group has therefore been requested to keep TBT compounds under review with particular regard to research on the bioavailability and analytical aspects of these compounds contained in sediments, and to also keep any new copper-based antifouling paints under review.

The Eleventh Consultative Meeting (LDC 11/14, paragraph 3.7) agreed to:

- urge all Contracting Parties to take steps to control the use of TBT compounds within their jurisdiction;

- urge Contracting Parties to search actively for antifouling paints that will not have harmful effects on the marine environment; and

- request Contracting Parties to provide to the Secretariat, for information of other Contracting Parties, the names of experts who could provide scientific and technical assistance in monitoring and evaluating the effects of TBT compounds on the marine environment.

Plastics

The Ninth Consultative Meeting recognized that living resources and marine life may be harmed by entanglement with and ingestion of persistent plastics and other synthetic materials such as fishing nets, plastic bags, packing cases, etc. In addition, legitimate uses of the sea may be impaired by the presence of such wastes. It should be recalled that Annex I, paragraph 4, prohibits dumping at sea persistent plastics and other persistently synthetic materials, for example, netting and ropes which may float or remain in suspension in the sea in such a manner as to interfere materially with fishing, navigation or other legitimate uses of the sea.

Through resolution LDC.22(9) adopted by the Ninth Consultative Meeting and through additional consideration at the Tenth Consultative Meeting (LDC 10/15, paragraph 8.13), it has been agreed that Parties should continue efforts to ratify Annex V of MARPOL 73/78 and, more specifically, to promote a variety of actions at a national level to reduce pollution by persistent synthetic material and to promote public awareness.

4. IMPLEMENTATION OF THE CONVENTION

4.1 Permits for dumping

4.1.1 Types of permit

It is one of the principles of the London Dumping Convention that a Contracting Party, whenever dumping wastes or other matter at sea, has first to issue a permit for such dumping. There are two types of permit: special permits and general permits.

Article III defines "special permits" as "permission granted specifically on application in advance and in accordance with Annex II and Annex III", whereas a "general permit" means "permission granted in advance and in accordance with Annex III".

4.1.2 Responsibility for issuing permits

Article VI provides that an appropriate authority or authorities have to be designated by each Contracting Party for the granting of general and special permits, for controlling the dumping operations through record keeping, and for the scientific monitoring of the condition of the seas for the purpose of dumping.

The London Dumping Convention does not specify whether a permit will have to be granted to ships, waste manufacturers or any other persons. Article VI, however, does provide that permits will have to be issued by the port State in cases where the wastes or other matter intended for dumping are loaded in the territory of this State provided that it is a Contracting Party. Alternatively, permits are to be issued by the flag State in the event that the wastes or other matter are loaded by a vessel or aircraft registered in the territory or flying the flag of a Contracting Party and where the State in which the wastes are loaded is not a party to the Convention.

These provisions do not cover the problems that may arise if wastes are exported from a Contracting Party to a non-Contracting Party with a view to wastes being loaded in a port of the non-Contracting Party and on board a ship which is not registered in a Contracting Party State. Neither do the provisions help in the case where a ship of a non-Contracting State loads at a port of a non-Contracting State material to be dumped in the territorial sea of a Contracting State. Please refer to section 5.7 for a more thorough discussion of the transboundary movements of hazardous wastes.

4.2 Criteria for issuing permits

4.2.1 Annex III

The relevant provisions of the Convention which guide the issuing of a permit are included in Articles III, IV and VI.

Article III provides that special permits have to be granted in accordance with Annex II and Annex III, and general permits may be granted in accordance with Annex III.

Article IV requires that any permit shall be issued only after careful consideration of all the factors described in Annex III, including prior studies of the characteristics of the dumping site, as set forth in Annex III and as shown at annex 5 to this report.

Article VI provides that Contracting Parties may establish criteria, measures and requirements additional to those set out in Annex III, as they consider relevant for the issue of dumping permits.

Since the entry into force of the Convention several Contracting Parties have expressed their view that the criteria set out in Annex III to the Convention are to some extent too general and need expansion or amendment in order to provide clearer guidance to the appropriate authorities. As a result of this, the Scientific Group on Dumping prepared and has kept under review, guidelines for the application of Annex III. The Eighth Consultative Meeting adopted such guidelines and the Eleventh Consultative Meeting amended the guidelines which specify the scientific and technical information to be considered by the responsible national authorities prior to the issuance of permits for dumping. They are embodied in Resolution LDC.32(11) as set out at annex 6 to this document.

A main area of disagreement remaining between Contracting Parties concerns the consideration of the practical availability of alternative land-based methods of treatment, disposal or elimination, or treatment to render the matter less harmful for dumping at sea (Annex III, section C, paragraph 4). Some Contracting Parties give this requirement very high priority in that no permit is granted for the dumping of those wastes for which alternative land-based methods are available. Others, bearing in mind the interpretation that the basic aim of the Convention is to provide an instrument for the control of dumping in order to prevent marine pollution (rather than the prevention of dumping itself) express the view that the "assimilative capacity" of the sea for some wastes could be utilized, and that the economic cost and practical availability of land-based alternatives, as well as the need to protect other sectors of the environment, need also to be taken into account.

Another area of significant disagreement between Contracting Parties is the consideration of an adequate scientific basis for decisions (Annex III, section B, paragraph 9). There is lack of agreement on whether or not scientific evidence of environmental impact without a linkage to possible environmental and human health effects and/or the identification of disposal at sea as a potential source of environmental impact is an adequate scientific basis to reject dumping at sea. In this context, the Scientific Group has repeatedly emphasized the importance of research into the environmental and health risks of waste disposal associated with both land-based and sea disposal options.

In accordance with resolution LDC.27(10), the ad hoc Group of Experts on the Annexes to the London Dumping Convention is examining ways in which these disagreements may be resolved.

4.3 Exceptions to general requirements for permit issuance

Exceptions to the main rules of the Convention introduced in the previous sections of this document are provided in Articles V and VII and in Annex I (paragraphs 8, 9 and 10) of the Convention.

4.3.1 Safety of human life and vessels

Article V(1) provides that under certain circumstances in which dumping is necessary to secure human life or the safety of vessels, aircraft, platforms or other man-made structures at sea, no permit is required but the dumping shall be reported forthwith to the Organization (i.e. the LDC Secretariat).

The cases mentioned in Article V(1) are:

.1 cases of force majeure caused by stress of weather; and

.2 any case which constitutes a danger to human life or a real threat to vessels, aircraft, platforms, etc.

Specific conditions under which this exemption will apply are set out as follows:

- dumping appears to be the only way of averting the threat; and
- there is every probability that the damage consequent upon such dumping will be less than would otherwise occur.

No consensus could be reached by Contracting Parties as to whether these provisions should apply for dumping and incineration vessels only (e.g., when wastes would have to be released outside the designated site), or whether any maritime incident at sea in connection with cargo thrown overboard would be covered. In regard to the latter, it was recognized that MARPOL 73/78 includes detailed notification requirements.

Noting that force majeur requirements are contained in both the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and the London Dumping Convention (LDC), the Eleventh Consultative Meeting agreed that for those States which are Parties to both LDC and MARPOL the practical solution was for national shipping authorities receiving reports under MARPOL and for national authorities responsible for implementing the London Dumping Convention to work together to ensure that all contingencies were covered. The latter authorities could then decide whether a report should be made to the LDC Secretariat (LDC 11/14, paragraph 9.4).

4.3.2 Emergency exception

Another exception provided for in Article V(2) is the issuance of a special permit for the dumping of black list substances in emergency cases; emergency being defined as a situation where unacceptable risk is posed to

human health and no other feasible solution is possible. Prior to the issue of such an emergency permit the Party shall consult:

.1 any other country or countries (Contracting Parties or not Contracting Parties) that are likely to be affected; and

.2 the Organization which will itself enter into consultation with:

- other Parties; and
- other international organizations, as appropriate.

During the preparation of the Convention the emergency exception was adopted as a package with a waiver included in Article V(3) to the effect that Contracting Parties may waive their rights under the emergency clause at the time of, or subsequent to ratification of, or accession to, the Convention.

In Article XIV which sets out the institutional arrangements to be made within the framework of the Convention and the duties of institutions, one of the tasks assigned to Consultative Meetings is the development of criteria and procedures related to emergency cases. Article XIV(4)(e) states that the Consultative Meeting may develop or adopt, in consultation with appropriate international organizations, procedures referred to in Article V(2), including:

.1 basic criteria for determining exceptional and emergency situations; and

.2 procedures for consultative advice and safe disposal of matter in such circumstances, including the designation of appropriate dumping areas.

After the entry into force of the Convention the Consultative Meeting of Contracting Parties as a matter of high priority considered the development of procedures and criteria for determining emergency situations. The First Consultative Meeting accordingly adopted Interim Procedures and Criteria which describe in detail the sequence of action to be taken by a concerned Party and by the Organization. The Fifth Consultative Meeting in 1980 amended the Interim Procedures and Criteria taking into account the development of regional dumping conventions. The text of the Interim Procedures and Criteria for Determining Emergency Situations is set out at annex 7.

Due to the rather broad definition of "emergency" as a situation where unacceptable risk is posed to human health and no other feasible solution is possible "emergency" requirements have been considered in connection with: spoilt cargo onboard ships, the disposal at sea of chemical warfare ammunition immediately after this had been found in fishing nets, and residues and rubble left over from the explosion of a chemical plant.

The Consultative Meeting further felt that "emergency" in many cases refers to situations requiring action with a marked degree of urgency. In order to facilitate consultation between those who might be concerned, it was agreed that a list of focal points (names, addresses, telephone and telex numbers) within each Member State should be established. (Also see section 6.6 on national administrations.)

4.3.3 "Rapidly rendered harmless" exception

This exception is set out in Annex I, paragraph 8, referring to black list substances which are rapidly rendered harmless by physical, chemical or biological processes in the sea provided they do not:

.1 make edible marine organisms unpalatable; or
.2 endanger human health or that of domestic animals.

It is further mentioned that a Contracting Party, if in doubt about the harmlessness of a substance, should follow the consultative procedure developed under the emergency clause.

The First Consultative Meeting of Contracting Parties requested GESAMP to study the scientific aspects of determining "harmlessness" and the physical, chemical and biological processes which might be relevant. GESAMP expressed the view that no substance is completely harmless and that harmlessness can only refer to the likelihood that a substance will not cause harm under a particular set of conditions. GESAMP also concluded that the substances most likely to be considered under the exclusion clause "rapidly rendered harmless" are organohalogen compounds; and that the dumping of mercury and cadmium and their compounds, oils and persistent plastic material should not be exempted, except under the exclusion clause of "trace contaminants" (Annex I, paragraph 9).

The Consultative Meeting of Contracting Parties, on the basis of advice given by GESAMP, agreed to consider the interpretation of "rapidly rendered harmless" and "trace contaminants" as one package. It was also agreed to base the interpretation of these terms on the results of tests to determine the impact which the substances may have under certain circumstances in the marine environment.

The Third Consultative Meeting in 1978 adopted Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I of the London Dumping Convention and these guidelines were amended at the Fourth and Tenth Consultative Meetings. Under these Interim Guidelines, substances listed in Annex I may be regarded as meeting the "rapidly rendered harmless" requirements

> "if tests of the waste or other matter proposed for dumping, including tests on the persistence of the material, show that the substances can be dumped so as not to cause acute or chronic effects or bioaccumulation in sensitive marine organisms typical of the marine ecosystem at the disposal site. A persistent substance should not be regarded as "harmless" except when present as a "trace contaminant".

The Interim Guidelines contain test procedures and procedures for consultation which shall be carried out if a Contracting Party has doubts about the results of the tests.

Resolution LDC.24(10) contains the Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I of the London Dumping Convention, and these are set out at annex 8. These guidelines exclude consideration of disposal at sea of dredged material because such dumping is addressed in separate guidelines (please refer to section 5.6).

4.3.4 "Trace contaminants" exception

This exception is included in Annex I, paragraph 9 and excludes certain Annex I substances from the dumping prohibition if these are contained in wastes or other matter as "trace contaminants".

Under the Interim Guidelines mentioned in the previous section, substances referred to in Annex I, paragraph 9 shall not be regarded as trace contaminants under the following conditions:

"(a) If they are present in otherwise acceptable wastes or other materials to which they have been added for the purpose of being dumped,

(b) if they occur in such amounts that the dumping of the wastes or other materials could cause undesirable effects, especially the possibility of chronic or acute toxic effects on marine organisms or human health whether or not arising from their bioaccumulation in marine organisms and especially in food species, and

(c) if they are present in such amounts that it is practical to reduce their concentration further by technical means."

4.3.5 Ships and aircraft entitled to sovereign immunity

International Conventions do not apply to those vessels and aircraft which are entitled to sovereign immunity under international law, in particular to any warship, naval auxiliary, and other vessels or aircraft owned or operated by a State and used only in government non-commercial service. The respective requirement of Article VII(4) however requests that each Contracting Party shall ensure, by the adoption of appropriate measures, that such vessels and aircraft, owned or operated by it, act in a manner consistent with the objectives and purpose of the Convention. The Organization shall be informed of such measures.

Pursuant to these provisions, flag State Parties are required to establish some form of licensing mechanism by which a (military) authority can control dumping from ships and aircraft entitled to sovereign immunity. For this reason it is uncertain whether certain provisions of the Convention would apply, i.e. those referring to the consultation procedures under the emergency clause of Article V(2) in relation to the dumping of wastes (e.g. military wastes) from military vessels. In this regard attention is drawn to substances which might occasionally be dumped from military vessels, e.g. materials produced for biological and chemical warfare, as mentioned in the Annex I black list. Such action would, however, be considered contrary to the "objectives and purpose" of the Convention.

The Twelfth Consultative Meeting agreed that the principles contained in Articles III (1)(a)(ii) on the definition of dumping and VII (4) mentioned above apply to the disposal at sea of any vessel, whether military or non-military, nuclear-powered or non-nuclear-powered, commissioned or decommissioned.

4.4 Amendment procedures

The Consultative or Special Meetings of Contracting Parties to the Convention shall keep under continuing review the implementation of the Convention and in this respect may adopt amendments to the Articles of the Convention and to its Annexes, in keeping with scientific and technical progress and political, social and economic developments. Under Article XV two separate stages of amendment procedures are laid down: the first relates to the adoption of amendments to the Articles and the Annexes to the Convention; the second relates to the entry into force of amendments to the Articles, and, by a different procedure, the entry into force of amendments to the Annexes.

Adoption of amendments

Amendments may be adopted by a Consultative or Special Meeting of Contracting Parties. The amendments must be supported by a "two-thirds majority of those present" at the Consultative Meeting or Special Meeting. It must be clearly indicated in advance by the Organization if the adoption of amendments is envisaged at a Consultative or Special Meeting, thus giving all Contracting Parties the opportunity to participate in the voting (Article XV(1)(b)). Article XV does not, however, exclude the possibility of convening a diplomatic conference for the amendment of the Convention.

The provision under Article XV (2) requiring that the approval of a "two-thirds majority of those present at a meeting" would be necessary for the adoption of amendments to the Annexes to the Convention, was interpreted by the Twelfth Consultative Meeting as "two-thirds of members present at a Meeting, whether they cast an affirmative or negative note, whether they abstain, whether they cast an invalid vote or negative note, or whether they take no part in voting. Participants of a Meeting who are not present at the session at which the voting takes place shall be considered as not present." This interpretation is consistent with Rule 33 of the IMO Assembly Rules of Procedure.

Entry into force of amendments to Articles of the Convention

The amendments to Articles enter into force sixty days after two-thirds of Contracting Parties have deposited an instrument of acceptance with the Organization. For Contracting Parties ratifying the amendments after this date, the amendments enter into force thirty days after depositing an instrument of acceptance .

Entry into force of amendments to the Annexes

For the entry into force of amendments to the Annexes, two possibilities exist:

.1 Contracting Parties may deposit an instrument of acceptance, in

which case no time limit exists and no minimum number of acceptances is required. The amendment enters into force for these Contracting Parties immediately after they have deposited an instrument of acceptance; or

.2 the amendment enters into force by tacit acceptance 100 days after adoption by the Meeting of Contracting Parties. Parties which are not able to accept the amendment at that time have to submit to the Organization an instrument containing a declaration of objection within the 100 day period. A declaration of non-acceptance may at any time be substituted by an instrument of acceptance.

Preparation and circulation of proposed amendments

The Consultative Meeting of Contracting Parties when considering several proposals for the amendment of annexes to the Convention realized that the amendment procedures set out in the Convention were of a very speedy nature in that they included the possibility that an amendment brought for the first time before a Consultative or Special Meeting may be adopted immediately. The Consultative Meeting expressed the need for any proposed amendment to be circulated to all Contracting Parties well in advance of a Consultative or Special Meeting to enable them to give thorough consideration to the proposed amendments.

The Fifth Consultative Meeting in 1980 therefore adopted resolution LDC.9(V) on "Procedures for the Circulation of Proposed Amendments to the London Dumping Convention" by which proposed amendments to the Articles of the Convention shall be circulated at least six months, and proposed amendments to the Annexes of the Convention at least three months, prior to their consideration at a Consultative or Special Meeting. The text of these procedures is set out at annex 9.

With regard to the amendment to the Annexes to the Convention, several Contracting Parties expressed the opinion that frequent amendments to the Annexes would cause administrative problems in their countries, in particular due to the speed with which amendments may enter into force through the tacit acceptance procedure.

The Fifth Consultative Meeting therefore developed two separate steps for adoption of amendments to the Annexes: The first step includes the adoption of amendments "in principle", after which Contracting Parties implement the amendment on a voluntary basis; in a second step the amendment would be formally adopted. Consultative or Special Meetings for formal adoption should not be scheduled more frequently than every third year. These procedures, however, include a clause by which in exceptional cases any Consultative or Special Meeting may formally adopt proposed amendments immediately. The Procedures for Preparation and Consideration of Amendments to the Annexes to the London Dumping Convention, as adopted by resolution LDC.10(V) at the Fifth Consultative Meeting of Contracting Parties, are set out at annex 10.

Two proposed amendments to the Annexes were considered for formal adoption at the Twelfth Consultative Meeting:

- the proposed deletion of organosilicon compounds from the list of substances set out in Annex II of the Convention was not adopted and the Scientific Group on Dumping has been requested to keep this item under continuing review; and

- the inclusion in Annex III, section A, of the following text:

  "In issuing a permit for dumping, Contracting Parties should consider whether an adequate scientific basis exists concerning characteristics and composition of the matter to be dumped to assess the impact of the matter on marine life and on human health.".

  was formally adopted through resolution LDC.37 (12).

4.5 Compliance and enforcement requirements

4.5.1 Reporting and notification requirements

The Convention does not include provisions for a formal supervision of Contracting Parties in the exercise of their obligations. However, certain provisions provide a possibility for indirect supervision by Parties to the Convention. Such provisions are related to the requirements concerning "reporting and notification" procedures.

Contracting Parties to the Convention are requested to notify the Organization responsible for Secretariat duties of the following:

.1 information on records of the nature and quantities of all matter permitted to be dumped and the location, time and method of dumping (Article VI(1)(c));

.2 information on permits issued for the incineration of wastes at sea in accordance with the Regulations for the Control of Incineration (Annex I, Addendum, Regulation 9);

.3 information on monitoring carried out individually, or in co-operation with other Parties and competent international organizations of the conditions of the seas for the purposes of the Convention (Article VI(1));

.4 the approval of an incineration system after an initial survey has been carried out by a Contracting Party in accordance with the Regulations for the Control of Incineration (Annex I, Addendum, Regulation 3);

.5 the dumping of wastes or other matter without a permit in cases of force majeure caused by stress of weather, or in any case which constitutes a danger to human life (Article V(1));

.6 the dumping in cases of emergency in which Contracting Parties (after a consultation procedure, see 4.3.2) may issue a special permit for the dumping of substances which are otherwise prohibited to be dumped at sea (Article V(2));

.7 measures adopted by a Contracting Party in addition to those required by the Convention itself with regard to:

- substances prohibited for dumping at sea ("black list" substances) (Article IV(3)); and

- criteria and measures which have to be taken into account when a permit (special or general) is issued (Article VI(3));

.8 the application of the Convention with regard to vessels and aircraft entitled to sovereign immunity (Article VII(4));

.9 the results of an environmental assessment to be carried out by a Contracting Party considering the issue of a special permit for dumping radioactive wastes at sea, as requested by the International Atomic Energy Agency (IAEA) in its Revised Recommendations (IAEA Safety Series No.78; see also section 5.4 to this document); and

.10 the results of international observations of loading and dumping radioactive wastes as requested by the IAEA in the Recommendations mentioned in sub-paragraph .9 above.

4.5.2 Reporting formats and procedures

The Consultative Meetings of Contracting Parties have adopted reporting formats and procedures for the notification to be made in accordance with the requirements listed above as follows:

.1 wastes and other matter permitted to be dumped at sea: annual reports of general permits issued per calendar year and immediate notification of a special permit have both to be submitted in accordance with the format shown at annex 11 (LDC 12/16, Annex 2). In addition, information has to be provided once per year on the actual amounts dumped per calendar year in accordance with the format shown at annex 12 (LDC IV/12, Annex 6);

.2 a format for the notification of incineration operations was adopted by a Consultative Meeting and is contained in the Technical Guidelines on the Control of Incineration at Sea (see section 5.5);

.3 monitoring activities carried out in connection with the dumping of wastes or other matter have to be notified in accordance with either the agreed notification forms or an alternate reporting system, both of which are set out at annex 13 (LDC 10/15, annex 7);

.4 a form of approval for an incineration system by a Contracting Party after an initial survey has been carried out shall be submitted to the Organization together with a survey report containing the results of measurements and tests made in accordance with the requirements of the Regulations for the Control of Incineration (Annex I, Addendum) (see section 5.5);

.5 the dumping in case of force majeure shall be notified by a Contracting Party without using a specific format;

.6 for dumping in cases of emergency information shall be provided within the framework of a prior consultation procedure in accordance with the format shown at annex 7;

.7 specific measures adopted by a Contracting Party in addition to those set out in Annexes I and III of the Convention shall be notified in the form of copies of legal, governmental or administrative rules, or if possible, summaries of those parts of such rules which refer to the specific measures, in one of the working languages of the Organization;

.8 with regard to measures concerning vessels and aircraft entitled to sovereign immunity adopted by Contracting Parties for ensuring that such vessels and aircraft act in a manner consistent with the objectives and purpose of the Convention, the Consultative Meeting confirmed that these should be notified, but it did not feel it appropriate to develop a specific format for such reports; and

.10 with regard to international observation of radioactive waste dumping operations, reports shall be circulated by the Organization to Contracting Parties. Dumping of radioactive wastes carried out under the auspices of the Nuclear Energy Agency (NEA) of the Organization for Economic Co-operation and Development (OECD) has provided for international observation. Summary reports on NEA/OECD operations have been submitted to the Secretariat for the London Dumping Convention.

The Secretariat is required to prepare annual summary reports containing the above relevant information notified by Contracting Parties for consideration at a Consultative Meeting. Information received on special permits is immediately circulated by the Organization to all Contracting Parties.

4.5.3 Monitoring requirements

Article VI(1)(d) of the Convention requires that Contracting Parties shall monitor individually, or in collaboration with other Parties and competent international organizations, the condition of the seas for the purposes of this Convention.

The definition of monitoring adopted at the Fifth Consultative Meeting, as set forth in paragraph 4.17 of LDC V/12, is as follows:

"Monitoring is the assessment of changes in the marine environment caused by dumping operations. This comprises two components:

.1 Monitoring for the purposes of surveillance of the marine environment is meant as the assessment of the spatial and temporal changes in the distribution, fates and effects of contaminants introduced by specific dumping operations; and

.2 Monitoring as part of scientific investigation and research programmes is aimed at increasing knowledge of the processes that control the transport, fates and effects of contaminants released to the marine environment through dumping."

The ninth meeting of the Scientific Group on Dumping agreed on the following annotations for interpreting article VI of the Convention (LDC/SG.9/13, paragraph 6.11):

".1 Monitoring" the condition of the seas for the purposes of this Convention" (as required in article VI(1)(d)) refers to those measurements performed by Contracting Parties, alone or in collaboration, to demonstrate the acceptability and compliance of their permitted at-sea dumping practices with the overall intent of the Convention and the requirements of the Annexes.

.2 Monitoring the general condition of regional seas over large areas that may be affected cumulatively by human activities other than at-sea dumping is not a requirement of the Convention, unless it is necessary to demonstrate the acceptability and compliance of permitted dumping practices.

.3 Monitoring, for the purposes of the Convention, should be designed primarily to document that the magnitude, scale, and duration of environmental effects related to a permitted dumping activity do not exceed those expected and accepted as a result of the pre-permit assessments performed in accordance with the Annex III Guidelines.

.4 The specific design of monitoring programmes developed by Contracting Parties in compliance with the Convention is highly dependent upon the characteristics of the waste and the disposal location, on the method of disposal, and on the other legitimate uses of the sea in the vicinity of the disposal activity. These factors are the primary considerations of the Annex III Guidelines (resolution LDC.17(8)). These Guidelines establish a framework for evaluating the potential effects of a proposed disposal activity. If a permit is issued, monitoring should be performed to confirm the reliability of the Annex III assessment.

.5 General guidelines for measurements to be included in a dumpsite monitoring programme for the purposes of the Convention can be developed effectively only in the specific context of the Annex III

Guidelines. The existing Annex III Guidelines should therefore be reviewed and revised where appropriate to incorporate additional mention and instruction relating to implications for monitoring requirements.

.6 In accord with article VI(4) of the Convention, Contracting Parties are to report to the Secretariat on the status of at-sea dumping activities within their jurisdiction. The purpose of these reports is to demonstrate compliance with the Convention. Because of the highly variable nature of at-sea dumping circumstances and their potential effects, detailed reporting requirements cannot be specified for many categories of relevant information.

.7 While not specifically required under the Convention, monitoring long-term trends of environmental quality and marine resource quality on large regional scales can provide a useful context for interpreting the effects of specific dumping practices, especially in regions of intensive use. Such programmes are encouraged."

The Eleventh Consultative Meeting noted that the Scientific Group was continuing to look for more practical and relevant monitoring techniques, including those that integrate physical, chemical and biological impacts. Based on advice provided by the Scientific Group, the Twelfth Consultative Meeting adopted a revised definition of monitoring (resolution LDC 36(12)) as follows:

> Monitoring "... the condition of the seas for the purposes of this Convention" (as required in Article VI(1)(d)), refers to those measurements performed by Contracting Parties, alone or in collaboration, to demonstrate compliance of their at-sea dumping and incineration practices with the overall intent of the Convention and the requirements of the Annexes,"

4.5.4 Enforcement

The provisions set out in Article VII of the Convention cover a wide range of measures primarily for the prevention and imposition of penalties for violations of the Convention. The enforcement rights and obligations of Contracting Parties under Article VII can be summarized as follows:

.1 Land Territory: Each Party shall take in its territory appropriate measures to prevent and punish conduct in contravention of the provisions of the Convention (Article VII(2));

.2 Flag State Enforcement: Contracting Parties are obliged to apply the Convention to vessels and aircraft registered in its territory (Article VII(1)(a)). By analogy the same may apply to platforms (Article VII(1)(c));

.3 Loading-Port State Enforcement: Contracting Parties shall apply the Convention to vessels and aircraft loading in their ports wastes and other matter to be dumped (Article VII(1)(b)). This gives the loading-port State the right to enforce the Convention upon ships of non-Contracting Parties even after these have left the port (e.g. if wastes loaded under a permit have been dumped in violation of the terms of the permit).

.4 Coastal State Enforcement: Contracting Parties which are coastal States shall enforce the Convention upon foreign vessels, aircraft and fixed or floating platforms which are under its jurisdiction (although not exclusive) due to their position in an area off their coasts. Any action concerning vessels etc. while under its jurisdiction (e.g. stop, board and inspect a foreign ship) by enforcement officers of a coastal State must be based on some evidence of violation, and therefore is restricted to vessels etc. "believed to be engaged in dumping" (Article VII(1)(c)). The area however in which a State has the right to enforce the Convention against foreign vessels is not specified by the Convention. The Eleventh Consultative Meeting (LDC 11/14, paragraph 5.4) nevertheless concluded that a Party could apply the Convention to dumping not only in its territorial waters but also in the Exclusive Economic Zone (EEZ) and onto its continental shelf.

.5 Enforcement on the High Seas: In cases where violation is committed on the high seas, enforcement lies primarily with the flag State under Article VII(1)(a). Certain powers are also given to the loading-port State under Article VII(1)(b). Finally, under Article VII(3), Parties agree to co-operate in the development of procedures for the effective application of the Convention on the high seas, including procedures for the reporting of vessels and aircraft observed dumping in contravention of the Convention. It was further agreed that this matter should be considered in conjunction with Article XIII which requires a definition of the nature and extent of the right and responsibility of a coastal State to apply the Convention in a zone adjacent to its coasts, following the conclusion of the Law of the Sea Conference. This matter is under consideration in the future work programme.

.6 Other Measures: Article VII(5) provides that each Contracting Party may adopt additional measures (referring to the enforcement of the Convention) to those described above, in accordance with the principles of international law, to prevent dumping at sea. This is similar to the provision under Article IV(3) (see 3.1) which refers solely to extending the prohibition on dumping to substances in addition to those of Annex I.

4.6 Liability

Under Article X the responsibility and liability of a State for damage to the environment of other States, or to any other area of the environment is recognized in accordance with the principles of international law. Contracting Parties are also required to develop procedures for the assessment of liability and the settlement of disputes regarding dumping.

This provision reflects the ideas of Principle 21 of the Declaration on the Human Environment (Stockholm Conference, see section 1.1) which was considered of high importance when the Convention was negotiated. The responsibility of Contracting Parties to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction is also set out in the preamble of the Convention.

The Eleventh Consultative Meeting of Contracting Parties, with a view to making progress in the development of the liability regime required by Article X of the Convention, agreed to establish a small task team of legal experts to take stock of existing domestic law and public international law on civil and state liability applicable to damage resulting from the disposal of wastes and other matter at sea (LDC 11/14, paragraph 6.12).

The report of the Task Team on Liability (LDC 12/8) was adopted by the Twelfth Consultative Meeting. The Meeting was of the view that the issue of liability was an extremely important one and that its Group of Legal Experts at a meeting in late 1990 should continue the work of the Task Team on Liability. The Meeting also agreed with the following concluding remarks from the Task Team's report.

Concluding remarks from the Liability Report

1 There is a rapidly growing awareness in the international community of the need to improve the protection of the environment, including the marine environment.

2 The London Dumping Convention provides for the strict regulation and control of waste disposal at sea by national administrations. With respect to the need for the elaboration of a State liability regime, it is noted that the London Dumping Convention has so far been largely successful in preventing harmful ocean dumping. However, in spite of the requirements of the Convention, it cannot be ruled out that dumping at sea may under certain circumstances result in harmful effects to the marine environment and human health, in particular in cases and areas where the requirements are not adhered to.

3 It appears that national regimes address liability for dumping in most cases, taking into account the scope of national laws and the geographical location of dumping. In this context, it is noted that almost all dumping occurs within 200 miles of national territory; however dumping also occurs on the high seas and could cause damage there, and in some such cases national laws might not adequately address liability for damage.

4 Since dumping activities take place in the marine environment in and outside areas of national jurisdiction, national laws and international rules of civil liability may be inadequate to address the subject of State responsibility or liability.

5 Liability for ocean dumping could be addressed through developments in national law, through an international civil liability regime, or through a regime of State liability.

6 In light of particulars of the dumping activities, it might be seen as necessary to elaborate specific rules relating to liability in the case of damage resulting from these activities.

7 It is noted that under the London Dumping Convention all dumping of low-level radioactive waste has been carried out on the high seas. The suspension of the disposal of radioactive wastes at sea has been very effective in that since its adoption, no sea disposal of low-level radioactive wastes has been carried out. Sea disposal of radioactive wastes will probably not be resumed until current studies and assessments contemplated in resolution LDC.21(9) have been completed. This demonstrates the ability of the Consultative Meeting to react promptly in cases where doubts have been expressed about possible harmful impacts of dumping on the environment.

8 It is noted that discussions are currently being held within a number of international and regional bodies (e.g., the ILC, IAEA, IMO, ECE and OECD) concerning questions related to State responsibility and liability. One may question whether in light of all these ongoing activities the elaboration of a liability regime within the London Dumping Convention deserves priority.

9 In light of the complex nature of the task of elaborating a liability regime and the other ongoing activities within the framework of the London Dumping Convention, attention should be given to the priority to be assigned to this question. Attention should also be drawn to the question of whether such a regime, once elaborated, would be likely to achieve wide acceptance by the Contracting Parties.

4.7 Settlement of disputes

Article XI provides that the Contracting Parties shall at their first Consultative Meeting consider procedures for the settlement of disputes concerning the interpretation and application of the Convention.

After preliminary consideration at the First Consultative Meeting an ad hoc Group of Legal Experts prepared an amendment to Articles XI, XIV and XV, together with an Appendix to the Convention containing arbitration procedures which were adopted by the Third Consultative Meeting. The amended Article XI reads as follows:

> "Any dispute between two or more Contracting Parties concerning the interpretation or application of this Convention shall, if settlement by negotiation or other means has not been possible, be submitted by agreement between the parties to the dispute to the International Court of Justice or upon the request of one of them to arbitration. Arbitration procedures, unless the parties to the dispute decide otherwise, shall be in accordance with the rules set out in the Appendix to this Convention."

The amendments will enter into force for the Parties which have accepted it on the sixtieth day after two-thirds of the Parties have deposited an instrument of acceptance with the Organization. Annex 1 to this report includes a list of the States which have deposited an instrument of acceptance with the Organization.

The arbitration procedures adopted at the Third Consultative Meeting are set out at annex 14.

4.8 Signature of States and entry into force of the Convention

At the London Conference in 1972 a proposal was brought forward that all States should have the opportunity for signature and accession to the Convention. In view of the difficulties that might be caused by the non-recognition of a State by a sole depositary State, a formula was included in Article XVI by which the Convention shall be open for signature by any State (even if it had not been invited to the Conference) at London, Mexico City, Moscow and Washington.

The Governments of Mexico, the Union of Soviet Socialist Republics, the United Kingdom and the United States of America were appointed as depositaries of the Convention. Article XVII provides that instruments of ratification shall be deposited with these Governments. Article XVIII provides that after 31 December 1973 the Convention shall be open to accession by any State and that instruments of accession shall be deposited with the governments of the above mentioned depositaries.

For entry into force Article XIX provides for a period of thirty days after the deposit of the fifteenth instrument of ratification or accession. For countries having ratified or acceded to the Convention after the fifteenth instrument of ratification or accession, the Convention shall enter into force thirty days after deposit of the instrument.

Any Contracting Party may withdraw from the Convention after a six month notice submitted to a depositary (Article XXI).

4.9 Promotion of technical assistance

Article IX provides for the collaboration of Contracting Parties for the promotion of scientific, educational, technical and other assistance to States which request it. This includes the supply of necessary equipment and facilities for research and monitoring, and support for the disposal and treatment of waste and other measures to prevent or mitigate pollution caused by dumping.

Roster of experts

The Ninth Consultative Meeting (LDC9/12, paragraph 8.3) reviewed the position of previous Consultative Meetings and agreed that for practical reasons the Secretariat need not maintain a formal roster of experts, but should instead draw upon those experts who contributed actively at meetings of the Convention.

Training

The Tenth Consultative Meeting noted the possibilities that exist to provide technical assistance under the programme supported by the Swedish International Development Authority (SIDA) (LDC 10/15, paragraph 10.2). The Meeting particularly noted the suggestion that on-the-job training might be provided by Contracting Parties with experience of waste disposal at sea to scientific/administrative staff from developing countries. There have been no requests for such training to date; however, several countries have offered to accommodate such trainees.

Education

The Intergovernmental Oceanographic Commission (IOC) sponsors an annual course at the World Maritime University (Malmö Sweden) on marine science and its role in the development and implementation of international conventions on the protection of the marine environment. This includes material on the role of the London Dumping Convention in preventing marine pollution by dumping at sea and promoting the control of all sources of marine pollution.

Seminars and symposia

IMO in its role as the Secretariat for the London Dumping Convention, has been active in sponsoring international symposia and organizing seminars for the exchange of scientific and technical information related to the implementation of the Convention. This has been done with financial assistance from the Swedish International Development Authority (SIDA) and various United Nations organizations such as the United Nations Environment Programme (UNEP), the Intergovernmental Oceanographic Commission and the World Bank.

The International Ocean Disposal Symposia which have been held since 1978 are supported by IMO. The Eighth International Ocean Disposal Symposium (IODS 8) held in Dubrovnik, Yugoslavia from 9 to 13 October 1989. As at previous symposia, a number of participants from developing countries were sponsored by the International Maritime Organization (IMO). The objectives of the symposia are: to provide a forum for the exchange of ideas and information among scientists involved in marine pollution and ocean disposal research; to enhance the scientific consideration of ocean disposal research and marine pollution processes in marine environments; and to generate recommendations and guidelines for future studies in marine pollution research including research dealing with ocean disposal.

Three regional seminars have been conducted to date, one in Mexico City (IMO/UNEP/IOC/Government of Mexico Seminar on the Control of Dumping and Other Waste Disposal Methods in the Wider Caribbean Region, 28 September to 1 October 1987) another in Bangkok (IMO/UNEP/IOC Regional Seminar on the Control of Waste Disposal at Sea, 14 to 18 December 1987); and one in Abidjan (IMO/UNEP/IOC/World Bank Seminar on Waste Management and Waste Disposal at Sea in West and Central Africa, 28 May to 1 June 1990).

The regional seminars have proved to be very effective in promoting the need for control of all sources of marine pollution and the value of a comprehensive waste management approach as embodied in Annex III of the London Dumping Convention. More specifically, the seminars created a greater awareness among the regional participants of the damaging effects that might be caused by disposal at sea if no proper hazard assessment and licensing control procedures are applied. The benefits of becoming Contracting Parties to the Convention and the development of dumping protocols in regional sea agreements has therefore been effectively promoted.

A national seminar on waste management and control of waste disposal at sea was held in Jamaica (Kingston, 27 February to 3 March 1989) with a view to promoting the effective implementation of the London Dumping Convention, as well as the potential role of disposal at sea within a comprehensive waste management approach. A further national seminar on the same priority topics was held in China from 11 to 17 September 1989. China ratified the Convention in 1985 and has expressed a keen interest in obtaining practical advice on implementing the Convention.

Participation in meetings

Fellowships have been provided under the IMO Global Programme for the Protection of the Marine Environment and by UNEP for the participation of developing countries in seminars and symposia. However, discussions between the Secretariat and funding agencies have not revealed any funding programmes which are amenable to support Governments of developing countries in sending their delegations to meetings organized under the Convention.

5. SPECIFIC DUMPING REQUIREMENTS AND ASSESSMENTS

5.1 Dumping vessels

In accordance with an agreement reached at the First Consultative Meeting to promote the development of codes of practice for the construction and equipment of vessels engaged in dumping (LDC I/16, Annex 7), the IMO Sub-Committee on Bulk Chemicals prepared suitable codes for both dumping and incineration vessels. Guidelines for the construction and equipment of ships carrying hazardous liquid wastes in bulk for the purpose of dumping at sea were adopted by the IMO Assembly in November 1985 (Resolution A.582(14)) and are shown at annex 15. With regard to marine incineration facilities, a mandatory code of practice for construction and equipment of incineration ships took effect on 1 July 1986 (1983 Amendments to SOLAS 1974, Vol.II, Chapter 19) and is shown at annex 16. The interpretation of Annex II of MARPOL 73/78 in respect of ships engaged in dumping operations and explanatory notes thereto is found at annex 17 (MEPC 25/20, annex 5).

The Eleventh Consultative Meeting confirmed that liquid chemical wastes being transported for dumping at sea should be classified as pollution category A substances under Annex II of MARPOL 73/78, i.e. incinerator ships may either discharge cargo tank washings and cargo pump-room bilges to a reception facility or incinerate them at sea in accordance with the requirements of the London Dumping Convention. In this connection the Meeting further agreed that Contracting Parties to the London Dumping Convention should ensure that any ships flying the flag of a non-Contracting Party to MARPOL 73/78 and engaged in a dumping operation for which a permit has been issued under the London Dumping Convention should observe these principles. The interpretation of MARPOL 73/78 in respect of incineration ships is found at annex 26 (MEPC 23/22, annex 7).

5.2 Disposal of offshore installations and structures

The Eleventh Consultative Meeting agreed that (LDC 11/14, paragraph 8.8):

- the draft IMO Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone found at annex 18 (LDC 11/8/2)* were acceptable from the view-point of the London Dumping Convention; and

- matters related to disposal of removed platforms and other structures should be included in the agenda of the twelfth meeting of the Scientific Group, with a view to preparing draft guidelines for consideration by the Twelfth Consultative Meeting.

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* The Guidelines were adopted in 1989 by the IMO Assembly at its 16th Session, under resolution A.672(16).

There are an estimated 6,800 platforms in operation worldwide of which 3,550 are located on the continental shelf and would come under the IMO Guidelines and Standards. Three thousand, one hundred (3100) platforms are located in shallow waters and the proposed standards call for their complete removal. The other 450 platforms are candidates for partial removal and would be considered on a case by case basis. On or after 1 January 1998 the Guidelines state that no installation or structure should be placed on any continental shelf or in any exclusive economic zone unless the design and construction of the installation or structure is such that entire removal upon abandonment or permanent disuse would be feasible.

The Scientific Group at its twelfth meeting agreed that the existing LDC, Annex III, provisions and guidelines were sufficient to address the environmental aspects of the disposal of offshore platforms and installations at sea, and that at this stage the development of specific guidelines were not necessary. The Twelfth Consultative Meeting agreed that the issue might have to be reviewed at future meetings of the Scientific Group dependent upon responses from Contracting Parties concerning a number of legal questions with regard to the definition of dumping at sea (e.g., as to whether the abandonment of offshore platforms, or the toppling of platforms at site, or the placement of platforms at sea bottom as artificial reefs, should be considered as "dumping").

5.3 Tankers converted to floating oily waste reception facilities

The Tenth Consultative Meeting agreed that discharges from tankers converted to floating oily waste reception facilities are considered to fall within the definition of dumping as contained in Article III 1(a)(i) of the Convention ("deliberate disposal") and Article III 1(b)(i) (disposal at sea of wastes or other matter "derived from the treatment of such wastes or other matter on such vessels ...") (LDC 10/15, paragraph 13.19).

The Eleventh Consultative Meeting confirmed that "oil wastes and water effluents derived from the treatment of such wastes" fall under the provisions of Annex I, paragraph 5 of the London Dumping Convention and that Contracting Parties when issuing permits for disposal at sea of oily effluents from floating reception facilities, should assess the impact of such discharges in accordance with relevant Convention procedures rather than merely adopting the MARPOL 73/78 standard for defining "clean ballast" which is "less than 15 ppm" oil content. It was recognized, however, that in most cases, discharges of effluents containing less than 15 ppm oil would not significantly affect the marine environment (LDC 11/14, paragraph 3.43).

5.4 Radioactive wastes

Regulations and recommendations

Radioactive wastes are divided in the London Dumping Convention into high-level and low-level. High-level wastes, as defined for the Convention by the International Atomic Energy Agency (IAEA), are included in Annex I (the "black list") and their disposal is completely banned. The high-level wastes

include materials resulting from fuel processing, irradiated fuel and irradiated fuel cladding. Low-level radioactive wastes appear in Annex II (the "grey list") of the London Dumping Convention and may therefore be dumped at sea under certain conditions. Typical low-level radioactive wastes are derived from hospitals and medical centres and include such items as clothing and gloves.

Work on the definition and on recommendations for the safe dumping of radioactive wastes that are not defined as unsuitable, has been carried out by the IAEA more or less continuously since 1974. The most recent revision of the "Definition" was formally adopted by the London Dumping Convention at the Tenth Consultative Meeting in October 1986. It was distributed at the Tenth Consultative Meeting under LDC 10/INF.9 and published as IAEA Safety Series No.78.

Annex 19 outlines the 1986 revision of the IAEA Definition and Recommendations. The newly calculated release rate limits (although based on different models, data and dose limits) did not change the annual release rate limits for alpha-emitters, reduced the limits slightly for beta/gamma-emitters of half-lives greater than a year and reduced by approximately a factor of 100 the limits for short-lived beta/gamma-emitters and tritium (LDC 10/15, paragraph 5.13). The limits set out in the Definition are those above which dumping may not take place and do not imply that dumping below those limits is automatically permitted. In this connection, the Recommendations (including environmental assessments, site selection and operational requirements) are to be taken into account and the actual radiation doses predicted from proposed dumping must in fact be a small fraction of the limit used to define what is unacceptable for dumping.

In addition to Safety Series No.78, there are a number of supporting IAEA documents for further reference, including:

- Control of Radioactive Waste Disposal into the Marine Environment (Safety Series No.61);
- Environmental Assessment Methodologies for Sea Dumping of Radioactive Wastes (Safety Series No.65);
- An Oceanographic Model for the Dispersion of Wastes Disposed in the Deep Sea (Technical Report Series No.263);
- Assessing the Impact of Deep Sea Disposal of Low-Level Radioactive Waste on Living Marine Resources (Technical Report Series No.288); and
- Principles for the Exemption of Radioactive Sources and Practices from Regulatory Control (Safety Series No.89).

The Consultative Meeting, when considering the recommendations of the IAEA, recognized the problems which are related to the fact that there are in effect very few wastes or other matter which are totally devoid of radioactivity. This could be interpreted as meaning that all wastes or other

matter whatsoever would require a special permit for dumping at sea, particularly as radioactive wastes mentioned in Annex II are not listed under the group of wastes which need a special permit only if contained in "significant amounts". The IAEA has therefore been requested to develop a de minimis level of radioactivity below which wastes or other matter would be considered as non-radioactive for the purpose of the Convention and could therefore be dumped under a general permit.

The IAEA in 1988 in co-operation with OECD/NEA prepared Principles for the Exemption of Radiation Sources and Practices from Regulatory Control (IAEA Safety Series No.89) which provides guidance to national authorities on establishing such rules. The application of these principles to marine disposal, in particular with regard to the question of what types and quantities of radioactive material may be dumped without a special permit (i.e. treated as non-radioactive materials) will be facilitated by the results of a GESAMP Working Group on Coastal Modelling which are expected to be available in 1990.

Evaluations

In 1983, at the Seventh Consultative Meeting, two Contracting Parties proposed an outright ban on the dumping at sea of any radioactive waste. After considerable discussion, the Meeting adopted a voluntary and non-legally binding moratorium on further dumping pending a review, by an independent panel of experts, of the relevant scientific and technical considerations. Resolution LDC.14(7) (LDC 7/12, annex 3) on the Disposal of Radioactive Waste is shown at annex 20. This panel, established by the London Dumping Convention and with members nominated by the IAEA and the non-governmental International Council of Scientific Unions (ICSU), produced its report in time for the Ninth Consultative Meeting of the London Dumping Convention in September 1985.* The main conclusions of this report can be summarized as follows:

- The present and future risk to individuals from past ocean dumping of radiaoctive wastes at the North East Atlantic dumpsite is extremely small. The risk (of developing a fatal cancer or severe hereditary defect) is predicted to peak about 200 years from now at a level of less than 10^{-9} or one chance in a billion per year. The most potentially-exposed individuals would be those consuming shellfish harvested in Antarctic waters.

- Notwithstanding the very small risk to individuals, the aggregate exposure to the global population from long-lived components of the dumped waste imply that the total casualties resulting from past dumping may be up to about 1,000 spread over the next 10,000 years or so. The dominant pathway for this exposure would not be via

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* IMO, Expanded Panel Report on the Review of Scientific and Technical Considerations Relevant to the Proposal for the Amendment of the Annexes to the London Dumping Convention Related to the Dumping of Radioactive Wastes, June 1985 (LDC 9/4, LDC 9/4/Corr.1).

shellfish consumption, but associated with the consumption of food produced on land. The reason for this is that the main contributor to these casualties (or to the collective dose commitment, as it is known technically) is the isotope carbon-14 which has a half-life (i.e. time required for its radioactivity to decrease by a factor of two) of 5,700 years. In such time much of the carbon-14 would escape from the ocean as gaseous carbon dioxide and spread throughout the world. If the carbon-14, and a few other long-lived radionuclides, were to be removed from the waste before disposal in the ocean, the collective dose commitment from future dumping operations would be very much reduced, although it should be appreciated that other means of disposal of the carbon-14 might carry risks comparable to those associated with sea dumping.

- The incremental dose from past dumping to individual marine organisms on the seafloor at the dumpsite, or nearby, will be significantly less than the dose that the organisms receive from naturally-occurring radioactivity and hence it is not expected to cause any detectable effects on populations of organisms. A resumption of dumping at a rate an order of magnitude higher than previously might cause damage to individual organisms, but would still not be expected to affect a whole population significantly".

At the Ninth Consultative Meeting, there was general agreement that the scientific report had not shown that the dumping of low-level radioactive wastes at sea was environmentally dangerous. On the other hand, it was agreed that the report had not proved that dumping was harmless. In this connection it was realized that solving the problem rested more in the political, legal, social and economic domains.

Resolution LDC.21(9) (LDC 9/12, annex 4) on Dumping of Radioactive Wastes at Sea was adopted at the Ninth Consultative Meeting, and is shown at annex 21. This resolution requested Contracting Parties to suspend radioactive dumping pending completion of additional scientific and technical studies and assessments, but more importantly additional studies on the wider political, legal, economic and social aspects of radioactive waste dumping.

In October 1986 the Tenth Consultative Meeting adopted a further resolution establishing an Inter-Governmental Panel of Experts from Contracting Parties to consider the above mentioned topics. Resolution LDC.28(10) (LDC 10/15, annex 11) on Studies and Assessments Pursuant to Resolution LDC 21(9) is shown at annex 22. It requests the Panel to examine or undertake studies and assessments of the wider political, legal, economic and social aspects of radioactive waste dumping, of the issue of land-based options and the costs and risks associated with them, and the question of whether it can be proven that any dumping of radioactive wastes and other radioactive matter at sea will not harm human life or cause significant damage.

The Panel has met twice and provided a progress report to the Twelfth Consultative Meeting in October 1989. The Panel believes that a preliminary study on legal issues could be completed in early 1990, although this would have to be updated and expanded in the subsequent years. It is also felt that

political issues could hopefully be to a large extent completed by 1990. Completion of social and economic issues may take until 1993, in particular as these would have to be developed in conjunction with the results of scientific and technical studies (e.g. evaluation of risks from sea dumping in relation to other risks, comparison of land and sea disposal options and effects of radioactive waste dumping on the marine environment and human health etc.).

The Sea-bed Disposal of High-level Radioactive Wastes

Although the London Dumping Convention bans the dumping of high-level radioactive wastes into the sea, there is no specific mention of the sea-bed. This form of disposal was not technically feasible in the early 1970s and consequently was not considered when the Convention was adopted in 1972.

By the 1980s, however, the emplacement of materials in the sea-bed was being seriously considered as a future means of disposal. Some Governments were concerned about this possibility and the matter was raised at the Eighth and Tenth Consultative Meetings.

At the Tenth Consultative Meeting in 1986 the majority of Contracting Parties supported the view that:

.1 the Consultative Meeting of Contracting Parties to the London Dumping Convention is the appropriate international forum to address the question of the disposal of high-level radioactive wastes and matter into the sea-bed, including the question of the compatibility of this type of disposal with the provisions of the London Dumping Convention; and that

.2 no such disposal should take place unless and until it is proved to be technically feasible and environmentally acceptable, including a determination that such wastes and matter can be effectively isolated from the marine environment, and a regulatory mechanism is elaborated under the London Dumping Convention to govern the disposal into the sea-bed of such radioactive wastes and matter.

THE OECD/NEA Co-ordinated Research Programme in relation to the Feasibility of Disposing of High-Level Radioactive Waste into the Sea-bed (NEA.OECD.1988) concluded that sea-bed disposal was technically feasible but that further research would be needed before actual schemes could be implemented.

A number of countries involved in the research work expressed interest in keeping this concept under review; therefore consultations will continue on an ad hoc basis within NEA to maintain a watching brief on scientific progress in this field, and to consider possible initiatives which could be envisaged in terms of international co-operation. For the time being the emphasis of radioactive waste disposal programmes is clearly on land disposal, and the resources available for sea-bed disposal studies are therefore very limited.

The disposal at sea of decommissioned nuclear-powered vessels and disposal into a subsea-bed repository of low-level radioactive wastes

The Twelfth Consultative Meeting considered a number of questions related to the disposal at sea of decommissioned nuclear powered vessels, as well as the disposal into a subsea-bed repository of low-level radioactive wastes. The interpretations provided by the Consultative Meeting are outlined below:

Interpretations

.1 The Consultative Meeting agreed that the principles contained in Articles III(1)(a)(ii) and VII(4) of the Convention apply to the disposal at sea of any vessel, whether military or non-military, nuclear-powered or non-nuclear powered, commissioned or decommissioned;

.2 The Consultative Meeting accepted that it is the appropriate forum to consider disposal of low-level radioactive wastes into a sub-seabed repository accessed from the sea; and

.3 The Consultative Meeting could not agree as to whether disposal of low-level radioactive wastes into a repository, constructed in bedrock either totally or partially beneath the sea, and accessed from shore (e.g. via a tunnel or other conduit would be dumping at sea under the terms of the London Dumping Convention. It was agreed to convene the ad hoc group of legal experts to determine whether the disposal of low-level radioactive wastes into sub-seabed repositories accessed from land constitutes dumping at sea under the terms of the LDC and, if not, whether the provisions of other conventions apply.

5.5 Incineration at sea

Starting in 1969, the incineration of noxious liquid wastes at sea has been used as a means of disposing of certain chemical by-products which are particularly hazardous.

Incineration at sea was still a very new method of disposing of waste when the London Dumping Convention was drafted and consequently, it was not considered at the outset. By 1978, however, it had become much more widespread and at the Third Consultative Meeting of Contracting Parties an addendum was adopted to Annex I containing regulations for the control of incineration of wastes and other matter at sea. Since 1978 there have been numerous evaluations of incineration at sea and these have resulted in amendments and additions to the London Dumping Convention requirements.

Two major developments affecting both the short- and long-term future of incineration at sea include:

.1 the decision by the Oslo Commission to phase out incineration at sea by 31 December 1994, based on the assumption that preferable land-based alternatives are or soon will be available in Western Europe; and

.2 the London Dumping Convention Resolution LDC.35(11) to take all steps possible to minimize or substantially reduce the use of marine incineration of noxious liquid wastes by 1 January 1991, and to re-evaluate incineration at sea of noxious liquid wastes as early in 1992 as possible, with a view to proceeding towards the termination of this practice by 31 December 1994.

Regulations

In 1978 the Third Consultative Meeting adopted Resolution LDC.5(III) by which it approved the following amendments to the Annexes to the Convention concerning the prevention and control of pollution by incineration of wastes and other matter at sea:

.1 the addition of a paragraph 10 to Annex I:
"10. Paragraphs 1 and 5 of this Annex do not apply to the disposal of wastes or other matter referred to in these paragraphs by means of incineration at sea. Incineration of such wastes or other matter at sea requires a prior special permit. In the issue of special permits for incineration the Contracting Parties shall apply the Regulations for the Control of Incineration of Wastes and Other Matter at Sea set forth in the Addendum to this Annex (which shall constitute an integral part of this Annex) and take full account of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea adopted by the Contracting Parties in consultation";

.2 the addition of a paragraph E to Annex II:
"E. In the issue of special permits for the incineration of substances and materials listed in this Annex, the Contracting Parties shall apply the regulations for the Control of Incineration of Wastes and Other Matter at Sea set forth in the Addendum to Annex I and take full account of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea adopted by the Contracting Parties in consultation, to the extent specified in these Regulations and Guidelines"; and

.3 the addition of an addendum to Annex I, containing Regulations for the Control of Incineration of Wastes and Other Matter at Sea.

The incineration at sea regulations found at annex 23 state that Contracting Parties shall apply the Regulations for the Control of Incineration of Wastes and Other Matter at Sea and take full account of the Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea. The regulations make it clear that incineration at sea is regarded only as an alternative to other means of disposal; Contracting Parties shall "first consider the practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the wastes or other matter less harmful, before issuing a permit for incineration at sea in accordance with these regulations". They go on to state that: "Incineration at sea shall in no way be interpreted as discouraging progress towards environmentally better solutions including the development of new techniques".

A mandatory code of practice for construction and equipment of incineration ships developed by the IMO Sub-Committee on Bulk Chemicals took effect on 1 July 1986 (1983 Amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS), Chapter 7; International Bulk Chemical Code, Chapter 19) and is set out at annex 16.

Guidelines

Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea were adopted by the Fourth Consultative Meeting (LDC IV/12, annex 8), with amendments adopted at the Fifth, Seventh, Eighth and Eleventh Consultative Meetings. The current Interim Technical Guidelines, Resolution LDC.33(11) adopted by the Eleventh Consultative Meeting (LDC 11/14, annex 5), are set out at annex 24.

Problems have sometimes arisen with contaminated materials from the cleaning and repair of incineration vessels while at sea. Interim Provisions for the Surveillance of Cleaning Operations Carried out at Sea on board Incineration Vessels were adopted by Resolution LDC.20(9) at the Ninth Consultative Meeting, with amendments adopted at the Eleventh Consultative Meeting by Resolution LDC.34(11). The current LDC guidelines (LDC 11/14, annex 6) are set out at annex 25. The Eleventh Consultative Meeting noted that Contracting Parties having ratified MARPOL 73/78 would apply the MARPOL requirements for the surveillance of cleaning operations carried out on board incineration vessels, and Contracting Parties not having ratified MARPOL 73/78 would apply the LDC guidelines. The interpretation of Annex II of MARPOL 73/78 in respect of incineration ships (MEPC 23/22, annex 7) is found at annex 26.

With regard to the implementation of the clauses "rapidly rendered harmless at sea" and "trace contaminants" of paragraphs 8 and 9 of Annex I to the Convention, the Fourth Consultative Meeting adopted preliminary procedures for the implementation of paragraphs 8 and 9 of Annex I to the Convention for the purpose of incineration at sea (LDC IV/12, annex 9). Amendments thereto were adopted at the Fifth, Seventh and Eighth Consultative Meetings. The current procedures are set out at annex 27.

In view of transboundary movements of wastes carried out for incineration at sea, the Fifth Consultative Meeting adopted Resolution LDC.11(V) on the Export of Wastes for Incineration at Sea. The Tenth Consultative Meeting also adopted resolution LDC.29(10) on Export of Wastes for Disposal at Sea. (Also please refer to section 5.7.) The Eleventh Consultative Meeting further agreed in resolution LDC.35(11) (see annex 28) that "Contracting Parties shall not export noxious liquid wastes intended for incineration at sea to any State not Party to the Convention, nor allow their disposal in other ways harmful to the environment, and that it was preferable that noxious liquid wastes from coastal States which are to be incinerated at sea be loaded in a harbour of the country from which they originate, and under full control of such a country, instead of being exported to another country".

To this has been added new guidelines to Section C4 of Annex III setting out the role of incineration at sea within a comprehensive waste management hierarchy. These new guidelines were adopted by the Eleventh Consultative Meeting (LDC 11/14, annex 4) by Resolution LDC.32(11) and are set out at annex 6.

Evaluations

Key concerns expressed about incineration at sea have included the effects of organic emissions, the risks of accidental spills and the waste management role for incineration at sea.

A joint LDC/Oslo Commission Group of Experts on Incineration at Sea met in April 1987 to examine the safety and environmental acceptability of this practice. As a result of the work undertaken by the Group of Experts and in the light of additional debate by the Scientific Group on Dumping, it was agreed that:

.1 no convincing evidence had been received to show that incineration at sea had caused harm to the marine environment;

.2 incineration at sea could play a role as an interim destruction technology for hazardous wastes within the framework of a comprehensive waste management system;

.3 further work was needed to evaluate the possible impacts of spillages on the marine environment from incineration and other chemical-carrying vessels; and

.4 further research on destruction-efficiency, possible impacts on the sea-surface microlayer and organic emissions should be encouraged.

The Eleventh Consultative Meeting considered these results and adopted resolution LDC.35(11) on the Status of Incineration at Sea (LDC 11/14, annex 7). The Twelfth Consultative Meeting subsequently agreed to a work programme to conduct the re-evaluation of incineration at sea called for in resolution LDC.35(11) and requested the Scientific Group on Dumping to:

.1 provide advice to the Contracting Parties on how to conduct the re-evaluation;

.2 review clean technology and practical availability of land-based alternatives; and

.3 take into account all relevant information on incineration technology and associated environmental implications. Resolution LDC.35(11) and the associated work programme are found at annex 28.

5.6 Dredged material

Navigable waterways of the world are vital to the economic growth of coastal nations and are an obvious link in international trade. Coastal ports and waterways are rarely naturally deep, and navigable depths to support shipping must be maintained by dredging. Annual dredging on a global basis results in hundreds of millions of tons (cubic metres) of dredged material that must be disposed of and managed in an economically and environmentally sound manner. Sea disposal is often an economically and environmentally preferred disposal solution.

At the Ninth Consultative Meeting the majority of Contracting Parties recognized that there were inadequacies in the Interim Guidelines for the Implementation of paragraphs 8 and 9 of the Convention (LDC IV/12, Annex 5), as applied to dredged material. It was also recognized that there were problems in applying the Annex III Guidelines to dredged material, in particular with respect to the appropriate sequence of assessments and attention to the special mitigative properties of sediments which distinguish dredged material from municipal and industrial wastes.

A joint LDC/Oslo Commission meeting of experts on dredged material was convened in 1985 to prepare draft guidelines for use by national authorities which would effectively bring together all the requirements and associated guidance of the Convention relevant to the disposal of dredged material into a single document. The Tenth Consultative Meeting endorsed the draft guidelines prepared by the meeting of experts, with some amendments, and adopted resolution LDC.23(10) concerning Guidelines on the Application of the Annexes to the Disposal of Dredged Material, shown at annex 29 (LDC 10/15, annex 2). Subsequently, the Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I to the London Dumping Convention (LDC IV/12, Annex 5) were revised to delete any reference to the disposal at sea of dredged material (please refer to section 4.3.3).

The Scientific Group was further requested to study mechanisms whereby the original recommendation of the Joint LDC/OSCOM Group of Experts on the Application of the Annexes to dredged Material regarding "the option of least detriment to the environment" could be accommodated within the framework of the Convention (LDC 10/15, paragraph 3.4).

The Tenth Consultative Meeting also recognized the continuing problem of contaminated sediments and urged Contracting Parties to take all practical steps to reduce inputs of hazardous substances into internal and coastal waters. Many waterways requiring dredging are located in industrial and urban areas, and the sediments to be dredged are often contaminated with wastes from these sources. Consequently, disposal of the contaminated sediments has generated serious concern that such operations may adversely affect water quality and aquatic organisms.

The Tenth Consultative Meeting also noted the recommendation of the Scientific Group that an additional paragraph should be included under Section C4 of the Guidelines for the Implementation of Uniform Interpretation of Annex III to the Convention (Resolution LDC17(8)) containing specific

provisions with regard to the availability of land-based disposal options for dredged material. The Meeting endorsed this recommendation and agreed that Section C4 of the Annex III Guidelines should be amended by adding to the end of the "interpretation" the following text:

> "In the special case of dredged materials, sea disposal is often an acceptable disposal option, though opportunities should be taken to encourage the productive use of dredged material for, for example, marsh creation, beach nourishment, land reclamation or use in aggregates. For contaminated dredged materials, consideration should be given to the use of special methods to mitigate their impact, in particular with respect to contaminant inputs. In extreme cases of pollution, containment methods (including land-based disposal) may be required but very careful consideration should be given to the comparative assessment of the factors listed above in selecting the most appropriate option. Further advice on the management of contaminated dredged materials is given in the Guidelines for the Application of the Annexes to the Disposal of Dredged Material (resolution LDC.23(10))."

5.7 Transboundary Movements of Wastes for Disposal

In recent years there has been an increase in the shipment of wastes from one country to another. In some cases this has been done because the country to which the wastes have been sent has better facilities for disposal than the country sending them. In other cases this does not apply and the practice has caused growing concern in many quarters.

The wastes themselves tend to be extremely dangerous, from both a safety and an environmental point of view, and difficult to destroy or dispose of. Critics of the practice of exporting wastes say that in some cases wastes are simply shifted from a country where disposal is strictly controlled to one which has not ratified international agreements and where the wastes may therefore be disposed of in a manner which is not compatible with the terms of the treaties to which the original country is a Party. The export of wastes, in short, is regarded by some critics simply as a way of evading international controls and this could involve disposal at sea. There is also the danger that the wastes could get into the sea during the course of the voyage - for example, as a result of an accident.

The problem of the movement of wastes across boundaries has been considered by a number of international organizations during the last few years. In June 1986 the Council of the Organization of Economic Co-operation and Development (OECD) adopted a resolution calling upon its Members to prohibit the movement of hazardous wastes to a final destination in a non-Member State without that country's consent and unless the wastes are directed to an adequate disposal facility (LDC 10/6).

This subject was also considered by the Contracting Parties to the London Dumping Convention at the Tenth Consultative Meeting in October 1986. The result was the adoption of Resolution LDC.29(10) (LDC 10/15, annex 13) on the export of wastes for disposal at sea which refers to the "increasing movements of wastes across national boundaries for a variety of purposes such as storage, recycling, treatment or final disposal".

Resolution LDC.29(10) on Export of Wastes for Disposal at Sea is found at annex 30 and recommends that Contracting Parties do not export wastes for sea disposal, especially those containing Annex I and II substances "unless there are both compelling reasons for such export and clear evidence that the wastes would be disposed of in compliance with the requirements of the London Dumping Convention....".

Responses from Contracting Parties to a questionnaire sent out by IMO in February 1988 (LDC.2/Circ.212) indicate that there have been no known cases during the last five years where wastes have been illegally imported for dumping or incineration at sea.

The Eleventh Consultative Meeting further adopted resolution LDC.35(11) (LDC 11/14, annex 7) on incineration at sea, one paragraph of which calls for a ban on the movement of noxious liquid wastes intended for incineration at sea to countries which are not Parties to the London Dumping Convention (see Annex 28).

The Twelfth Consultative Meeting agreed that pursuant to Resolution 2 adopted by the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel, 23 March 1989), Contracting Parties should be invited to review the provisions of the London Dumping Convention in light of the Basel Convention and submit their views inter alia on the need to recommend any additional measures within the London Dumping Convention or the Basel Convention in order to enhance the effectiveness of either Convention with respect to the environmentally sound disposal of wastes.

6. INSTITUTIONAL ARRANGEMENTS

6.1 Secretariat

Under Article XIV the appointment of an (existing) organization to be responsible for secretariat duties in relation to the Convention is entrusted to a meeting of the Contracting Parties. In accordance with the provisions of this Article a meeting was convened by the Government of the United Kingdom in London in December 1975. At this meeting the Inter-Governmental Maritime Consultative Organization (IMCO)* was designated as the Organization responsible for Secretariat duties under the Convention. A resolution adopted by the meeting provides that Contracting Parties inter alia:

> "RECOGNIZE that the Inter-Governmental Maritime Consultative Organization is a competent Organization within the meaning of Article XIV of the Convention,
>
> DESIGNATE the Inter-Governmental Maritime Consultative Organization to be responsible for Secretariat duties in relation to this Convention."

The functions of the Organization with regard to the secretariat duties are listed in Article XIV(3), including:

.1 the convening of consultative meetings not less frequently than once every two years and of a special meeting at any time on the request of two-thirds of the Parties;

.2 preparing and assisting, in consultation with Contracting Parties and appropriate International Organizations in the development and implementation of procedures related to the exceptions under the emergency clause under Article V(2) (see 4.3.2);

.3 considering enquiries by, and information from, Contracting Parties on questions related to the prevention of marine pollution by dumping which are not specifically covered by the Convention; and

.4 conveying to the Parties concerned all notifications submitted by Contracting Parties on:

- measures taken by Contracting Parties for the complete prohibition of substances in addition to those listed in Annex I (Article IV(3)) (see 3.1 "stricter measures");
- cases of force majeure or danger to human life (Article V(1)) (see 4.3.1);

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* Now named the International Maritime Organization (IMO)

- cases in emergency situations (Article V(2)) (see 4.3.2);

- nature and quantities of matter permitted to be dumped, monitoring activities and measures and criteria adopted by a Contracting Party in addition to Annex III (Article VI(4)) (see 4.5.2);

- the request to convene special meetings and of any amendments to the Convention adopted at meetings of Contracting Parties, as well as of any acceptance of an amendment of declarations of objection to amendments (Article XV); and

- the deposit of instruments of ratification and accession to, or withdrawal from, the Convention (Articles XX and XXI).

6.2 Consultative Meetings

Tasks and duties

Under Article XIV Consultative Meetings (to be convened by the Organization at least once every two years) and Special Meetings (to be convened at the request of two-thirds of Contracting Parties) have the duty to keep under continuing review the implementation of the Convention. The meetings are further empowered to:

.1 review and adopt amendments to the Convention and its Annexes;

.2 invite the appropriate scientific body or bodies for collaboration and advice on any scientific or technical aspect relevant to the Convention, particularly regarding the content of the Annexes;

.3 consider reports prepared by the Secretariat in accordance with requirements mentioned in sub-paragraph 6.1.4 above;

.4 promote co-operation with and between regional organizations concerned with the prevention of marine pollution;

.5 develop or adopt, in consultation with appropriate international organizations procedures regarding dumping under the emergency clause, including consultation procedures and the designation of appropriate dumping sites; and

.6 consider any additional action it feels appropriate.

As provided for by Article XIV, the First Consultative Meeting established rules of procedure for Consultative Meetings and those of its subsidiary bodies (see annex 31).

Since the entry into force of the Convention in 1975, the Organization between 1976 and 1989 has convened 12 Consultative Meetings. The Thirteenth Consultative Meeting will be held in October/November 1990.

6.3 Scientific advisory bodies

With regard to the use of an appropriate scientific body or bodies for collaboration and advice as referred to in sub-paragraph 6.2.2 above, the Consultative Meeting on several occasions invited GESAMP to provide scientific advice, in particular where comprehensive multi-disciplinary coverage was needed. The Consultative Meeting had at an early stage designated the International Atomic Energy Agency (IAEA) as the expert body responsible for defining high-level radioactive wastes or other high-level radioactive matter which is unsuitable for dumping at sea, and for providing recommendations on the issue of permits for dumping radioactive waste or other radioactive matter. The Consultative Meetings have further established ad hoc groups whenever it felt necessary, the most important of which have been the ad hoc Scientific Group on Dumping, the ad hoc Working Group on Dredged Material Disposal, the ad hoc Working Group on Incineration at Sea, the ad hoc Group of Legal Experts on Dumping and the Panels on Sea Disposal of Radioactive Waste.

The ad hoc Scientific Group on Dumping, which met intersessionally 13 times since 1977, has been regarded as the scientific and technical advisory body of the Consultative Meeting. By agreement of the Eighth Consultative Meeting in 1984 it received permanent status and became the Scientific Group on Dumping (Resolution LDC 18(8)) with revised Terms of Reference as follows:

- to respond to specific requests from the Consultative Meeting for scientific advice on matters related to the Convention;

- to keep under continuing review the provisions of the Annexes to the Convention and recommend to the Consultative Meeting such changes as may be appropriate from an examination of available scientific and technical information and prepare, as needed, guidance on the interpretation and implementation of the Annexes to the Convention;

- to review relevant scientific information, particularly that arising from new scientific and technological developments (with respect to newly synthesized compounds, newly discovered hazards of existing substances and new techniques for waste treatment and disposal) and prepare for distribution by the Secretariat, reports on such matters as may be relevant to the Contracting Parties in implementing the Convention;

- to prepare and maintain a list of hazardous substances or groups of substances to which particular attention should be paid, and, when sufficient scientific evidence has accumulated to warrant amendments to the Annexes to the Convention, to prepare recommendations for such amendments and submit them to the Consultative Meeting for action;

- to develop guidelines for planning monitoring programmes to assess the health of the oceans, and to encourage the development of monitoring programmes by Contracting Parties either acting individually or in co-operation;

- to maintain an awareness of the impacts on the marine environment of inputs from all waste sources and draw to the attention of the Consultative Meeting any emerging or worsening problems; and

- to recommend to the Consultative Meeting the calling of special scientific conferences or symposia to review specific wastes or waste treatment and disposal technologies.

6.4 Participation of non-governmental international organizations

With regard to the participation of non-governmental international organizations at meetings of Contracting Parties, some problems have emerged as to which organizations should be invited to attend. Accordingly more detailed procedures concerning invitation, presentation of documentation and participation in discussions were established at the Sixth Consultative Meeting and amended at the Eleventh Consultative Meeting by resolution LDC.30(11) (LDC 11/14, annex 2). These procedures are found at Annex 32.

6.5 Joint meetings

Where items are not only of concern to the Consultative Meeting but also to other bodies (e.g. regional or other international organizations) the convening of joint meetings with these other bodies have taken place. On one such occasion a joint meeting on incineration at sea was convened by the Organization and the Secretariat of the Oslo Convention. A further example of a joint meeting was that agreed by the Fifth Consultative Meeting in consultation with the International Atomic Energy Agency (IAEA) and with co-operation from UNEP. The Meeting was held in 1982 and produced detailed guidelines on the information which should be included in environmental assessment studies in connexion with the proposed dumping of radioactive wastes.

6.6 National administrations

As agreed at the Eighth Consultative Meeting, the Secretariat had made efforts to collect the addresses of national administrations responsible for the control of dumping and incineration at sea in order to enable the Secretariat and others to make direct contact with these administrations. The names and addresses of national administrations received so far by the Secretariat are set out at annex 33. There are still a number of Contracting Parties which have not yet notified the Secretariat of their "point of contact" and a form for notifying the Secretariat is also set out at annex 33.

7. RELATIONS WITH OTHER INTERNATIONAL AGREEMENTS

7.1 Relations with the UN Convention on the Law of the Sea

At the time of preparing the text of the London Dumping Convention the question of jurisdiction over the sea was unsettled under international law. Thus in Article XIII a clause was included that nothing contained in the Convention may be interpreted in a way prejudicial to the codification and development of the law of the sea in the context of the UN Conference on the Law of the Sea. In a second element of the clause it is also stated that nothing in the Convention shall prejudice the present or future claims (concerning jurisdiction over the sea) and present or future legal views (of States opposing extensive jurisdiction on the sea) of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction.

The second part of Article XIII reflects the agreement that Contracting Parties consult at a meeting after the Law of the Sea Conference, and in any case not later than 1976, with a view to defining the nature and extent of the right and the responsibility of a coastal State to apply the Convention in a zone adjacent to its coast.

The Consultative Meeting of Contracting Parties in 1975 and again in 1981 considered the general implications of the then draft Law of the Sea Convention to the London Dumping Convention, in particular with regard to the provisions of Articles VII(1)(c) and XIII. It was agreed that further discussion on this matter should await the conclusion of the United Nations Conference on the Law of the Sea. The Conference concluded its proceedings in 1982 which led to the adoption of the United Nations Convention on the Law of the Sea, the official text of which was published in 1983.

The Eleventh Consultative Meeting agreed that there were no fundamental inconsistencies between the United Nations Convention on the Law of the Sea (UNCLOS) and the London Dumping Convention, which would suggest the need to amend the London Dumping Convention (LDC 11/14, paragraph 5.2). The Meeting also agreed that the London Dumping Convention should be interpreted in the light of developments in international law since the adoption of the London Dumping Convention in 1972, including those reflected in Part XII of UNCLOS. It was indicated that, inter alia, the requirements of articles VII(1)(c) and VII(2) of the London Dumping Convention should be interpreted accordingly.

The Meeting endorsed the view that a Contracting Party could apply, in accordance with international law, the London Dumping Convention to dumping not only in its territorial waters but also in the Exclusive Economic Zone and onto its continental shelf. The Meeting noted the divergence of views as to whether an EEZ, as such, must be established before a coastal State could exercise jurisdiction over the dumping conducted in the area within 200 nautical miles from the coast.

The Meeting also agreed that this matter should be considered in the future with a view to implementing Article XIII of the Convention at a future Meeting. Article XIII requires Contracting Parties to consult at a meeting to be convened after conclusion of the Law of the Sea Conference with a view to defining the nature and extent of the right and the responsibility of a coastal State to apply the Convention in a zone adjacent to its coast.

7.2 Relations to regional agreements

Article VIII of the Convention encourages Contracting Parties with common interests in a given geographical area to enter into regional agreements, taking into account characteristic features of the regional marine environment. The contents of these agreements should be consistent with those of the Convention. Non-parties to these regional agreements are not legally bound by them, but they should endeavour to act consistently with them. Co-operation with Parties to regional agreements shall be sought in order to harmonize procedures (e.g. on notification and reporting) and activities, in particular in the field of monitoring and scientific research.

Article XIV(4) of the Convention, which outlines the duties of consultative or special meetings of Contracting Parties, specifies that these meetings may promote co-operation with and between regional organizations concerned with the prevention of marine pollution. In addition, Article VI(4) provides for reporting to the Organization, and specifies that such reports shall be submitted either directly or "through a Secretariat established under a regional agreement".

The wish of Contracting Parties to improve protection of the marine environment by encouraging States of specific geographical areas to enter into regional agreements supplementary to the Convention is also reflected in the Preamble of the London Dumping Convention.

In the light of the above provisions, the First Consultative Meeting in 1976 agreed that working arrangements with regional organizations responsible for Secretariat duties should be established, in particular with regard to the exchange of documentation and other information, mutual representation at meetings and, as far as possible, the harmonization of reporting and notification procedures.

The role of the global London Dumping Convention in contrast to that of regional agreements was considered at a meeting in 1981 of representatives of Contracting Parties to the London Dumping Convention, the Oslo Convention, Helsinki Convention, Barcelona Convention and the Paris Convention. The Sixth Consultative Meeting in this connexion agreed that the role and also the long-term objectives of the London Dumping Convention were, inter alia:

.1 to create an awareness among all Member States and Bodies of the United Nations of the problems of marine pollution caused by dumping of wastes at sea;

.2 to develop the overall legal framework for the taking of all practicable means for the control and prevention of pollution by the dumping of wastes at sea;

.3 to establish the overall policy and principles which apply globally and from which regional agreements could draw guidance;

.4 to encourage the development of regional agreements in the spirit expressed in Articles VIII and XIV(4)(d) of the London Dumping Convention and to review the progress made under such regional conventions or agreements;

.5 to regulate in particular those wastes that contribute to the overloading of the resilience of the oceans to pollution;

.6 to provide the necessary linkage with other international organizations (regional or global) concerned with the protection of the marine environment; and

.7 to provide a forum for the exchange of information at a scientific and technical level on the global ocean dumping problems, particularly on the long-range impact of dumping at sea and on alternative measures to this method of waste disposal, in particular on long-term solutions.

With regard to .6 above, Task Team 2000 (see section 1.5) has recommended closer ties with UNEP and representation of the London Dumping Convention at meetings of other bodies dealing with marine pollution. The Consultative Meeting is encouraged to convene regular meetings of representatives of regional and international conventions concerned with marine pollution and sea dumping, for example once every four years, and to involve UNEP in the organization of such meetings.

7.3 Compatibility of provisions of regional agreements and the global Convention

Under Article VIII regional agreements should be "consistent" with the London Dumping Convention. The Convention, however, does not clearly solve the problems which may arise for States which are Parties to both the London Dumping Convention and a regional agreement, if rules are contained in the latter which are incompatible with the London Dumping Convention. It is, however, generally understood that although the London Dumping Convention does not include a specific clause on this matter, the stricter provisions should apply (lex specialis rule) or, if there is a conflict between the provisions of conventions, the more recent requirement will have to be taken into account (lex posterior rule).

8. CONCLUDING REMARKS

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter was the first global Convention to be established for the control of marine pollution caused by a wide variety of substances. The control mechanism was based on the complete prohibition of the dumping at sea of particular harmful substances and by establishing licensing systems for the dumping at sea of all other substances.

Since the entry into force of the London Dumping Convention, increasing efforts have been made by Contracting Parties to reduce the amounts of hazardous wastes dumped and incinerated at sea by changing industrial processes and through the use of recycling methods and waste treatment techniques. But in spite of these waste management efforts, disposal at sea of certain waste types, in particular dredged material and sewage sludge, will probably continue to be considered a practicable and environmentally acceptable option.

The various procedures adopted within the framework of the London Dumping Convention for minimizing harmful effects provide effective guidance to Contracting Parties concerning the selection of dumping sites, dumping techniques and monitoring programmes. This has created greater awareness among Contracting Parties concerning the damaging effects that might be caused by disposal at sea if no proper hazard assessment and licensing control methods are applied. These procedures adopted within the framework of the London Dumping Convention have also been effective in promoting the control of all sources of marine pollution and the value of a comprehensive waste management approach.

As might be expected, the Contracting Parties to the London Dumping Convention hold different views on the disposal of wastes at sea. Some countries prefer not to use this form of waste management and adopt land-based alternatives wherever possible. Others believe that disposal at sea can be an environmentally acceptable, and sometimes necessary, part of their waste management programmes. These differing views are reflected in the various interpretations given to one of the sections of Annex III (section C(4)) which calls upon the responsible agencies to consider, in every case, the "practical availability of alternative land-based methods of treatment, disposal or elimination, or treatment to render the waste less harmful for dumping at sea". If the foregoing analysis shows that the ocean alternative would be less preferable, the guidelines adopted for the implementation of Annex III (Annex III Guidelines) state that a licence for sea disposal should not be given.

Despite the disagreement over the interpretation of 'alternatives' and the ultimate purpose of the Convention, there is unanimous support for the introduction of improved waste management procedures based on a hierarchical system. The hierarchy comprises a tiered approach to the control of waste production and disposal - the highest level gives preferred status to waste avoidance, while subsequent tiers emphasize recycling, treatment, destruction,

disposal and (least desirable) storage. Work is currently underway by the Scientific Group on Dumping to reflect these important waste management principles and to include them in the Annex III Guidelines. This is a significant step for the Convention because, apart from uniting Contracting Parties in support of a long-term strategy, it helps to clarify the role of disposal at sea - that is, it may be seen in certain cases as an interim solution pending the development of less wasteful technologies, improved opportunities for recycling and better techniques for treatment or disposal.

Despite this progress there is growing concern that the number of States acceding to the Convention is continuously slowing down. For example, 17 States became Contracting Parties between the entry into force in 1975 and late 1978, 12 between 1978 and 1985, and only three States acceded to the Convention between 1985 and 1989. Consultative Meetings have, therefore, requested the Secretary-General of the Organization not only to urge Governments to ratify or accede to the Convention, but also to indicate any specific problems they may have or assistance they may require in implementing the provisions of the Convention. Particular attention has been drawn to the support Contracting Parties would provide pursuant to Article IX, if requested.

There is a similar concern that the level of participation of Contracting Parties in the work of the Convention is inadequate in areas such as responses to requests for information, failure to report dumping and reluctance by many countries to prepare and submit documentation to convention meetings. For example, the lack of response to the notification requirements by approximately 50% of the Contracting Parties has resulted in a subsequent lack of confidence concerning the control and enforcement procedures of the Convention. Various ways are being explored to encourage Contracting Parties to more actively participate in the work of the Convention.

During the next decade a number of issues are likely to demand attention. The dumping at sea of radioactive wastes and the incineration of chemical wastes at sea are likely to remain the main focus of attention in the short term.

In the longer term, issues such as the export of hazardous wastes, the monitoring and surveillance of international waters, and the emplacement into the sea-bed of hazardous wastes are likely to require more attention. Discussions are also being held concerning the future role of the Convention and its possible role with regard to marine pollution from land-based sources.

Certain other trends have become evident and will influence the work of the Consultative Meeting and its advisory bodies. The foremost of these is the growing interest and concern of the public regarding the health of the oceans and the influence which this can exert on national policies for the control of marine pollution.

Secondly, developments within the various international frameworks for protection of the marine environment have been subjected to much closer study by major environmental organizations. Such organizations have been prepared, when the occasions arise, to challenge practices and procedures which in their view fail to contain adequate safequards. The Consultative Meeting has welcomed such participation.

The effect of the above trends will be to maintain a continuing high profile for activities within the scope of the London Dumping Convention and, in all likelihood, will promote greater consideration of alternative land-based methods for certain wastes currently dumped at sea.

There will certainly be other points in the future which will be the subject of disagreement between the Contracting Parties to the Convention but, in general, it has been demonstrated that the Convention provides an effective instrument for the protection of the marine environment not only because of the requirements contained in the Convention itself, but also by the willingness of the Parties to work together.

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ANNEX 1

LIST OF CONTRACTING PARTIES AND STATUS OF AMENDMENTS
(LDC 13/2)

LIST OF GOVERNMENTS WHICH HAVE IMPLEMENTED
ARTICLES XVII OR XVIII OF THE CONVENTION

	Date of ratification or accession	Date of entry into force
Afghanistan	2 April 1975	30 August 1975
Argentina	11 September 1979	11 October 1979
Australia	21 August 1985	20 September 1985
Belgium	12 June 1985	12 July 1985
Brazil	26 July 1982	25 August 1982
Byelorussian SSR	29 January 1976	28 February 1976
Canada	13 November 1975	14 December 1975
Cape Verde	26 May 1977	25 June 1977
Chile	4 August 1977	3 September 1977
China	14 November 1985	14 December 1985
Costa Rica	16 June 1986	16 July 1986
Cote D'Ivoire	9 October 1987	8 November 1987
Cuba	1 December 1975	1 January 1976
Cyprus	7 June 1990	7 July 1990
Denmark 1/	23 October 1974	30 August 1975
Dominican Republic	7 December 1973	30 August 1975
Finland	3 May 1979	2 June 1979
France	3 February 1977	5 March 1977
Gabon	5 February 1982	7 March 1982
German Democratic Republic	20 August 1976	19 September 1976
Germany, Federal Republic of	8 November 1977	8 December 1977
Greece	10 August 1981	9 September 1981
Guatemala	14 July 1975	30 August 1975
Haiti	28 August 1975	27 September 1975
Honduras	2 May 1980	1 June 1980
Hungary	5 February 1976	6 March 1976
Iceland	24 May 1973	30 August 1975
Ireland	17 February 1982	19 March 1982

	Date of ratification or accession	Date of entry into force
Italy	30 April 1984	30 May 1984
Japan	15 October 1980	14 November 1980
Jordan	11 November 1973	30 August 1975
Kenya	7 January 1976	6 February 1976
Kiribati	12 May 1982	11 June 1982
Libyan Arab Jamahiriya	22 November 1976	22 December 1976
Malta	28 December 1989	27 January 1990
Mexico	7 April 1975	30 August 1975
Monaco	16 May 1977	15 June 1977
Morocco	18 February 1977	20 March 1977
Nauru	26 July 1982	25 August 1982
Netherlands 2/	2 December 1977	2 January 1978
New Zealand	30 April 1975	30 August 1975
Nigeria	19 March 1976	18 April 1976
Norway	4 April 1974	30 August 1975
Oman	13 March 1984	12 April 1984
Panama	31 July 1975	30 August 1975
Papua New Guinea	10 March 1980	9 April 1980
Philippines	10 August 1973	30 August 1975
Poland	23 January 1979	22 February 1979
Portugal	14 April 1978	14 May 1978
Seychelles	29 October 1984	28 November 1984
Solomon Islands	6 March 1984	5 April 1984
South Africa	7 August 1978	6 September 1978
Spain	31 July 1974	30 August 1975
Saint Lucia	23 August 1985	22 September 1985
Suriname	21 October 1980	20 November 1980
Sweden	21 February 1974	30 August 1975
Switzerland	31 July 1979	30 August 1979

	Date of ratification or accession	Date of entry into force
Tunisia	13 April 1976	13 May 1976
Ukrainian SSR	5 February 1976	6 March 1976
United Arab Emirates	9 August 1974	30 August 1975
USSR	30 December 1975	29 January 1976
United Kingdom 3/	17 November 1975	17 December 1975
United States	29 April 1974	30 August 1975
Yugoslavia	25 June 1976	25 July 1976
Zaire	16 September 1975	16 October 1975

1/ Ratification by Denmark was declared to be effective in respect of the Faroe Islands as from 15 November 1976.

2/ Ratification by the Netherlands was declared to be effective in respect of the Netherlands Antilles and, with effect from 1 January 1986, in respect of Aruba.

3/ The United Kingdom declared ratification to be effective also in respect of:

	Effective Date
Bailiwick of Guernsey	
Isle of Man	
Belize*	
Bermuda	
British Indian Ocean Territory	
British Virgin Islands	
Cayman Islands	
Falkland Islands and Dependencies	
Gilbert Islands**	
Hong Kong	17 November 1975
Monserrat	
Pitcairn	
Henderson	
Ducie and Oeno Islands	
Saint Helena and Dependencies	
Seychelles***	
Solomon Islands****	
Turks and Caicos Islands	
Tuvalu*****	
United Kingdom Sovereign Base Areas of Akrotiri and Dhekelia in the Island of Cyprus	
Bailiwick of Jersey	4 April 1976

* Has since become the independent State of Belize

** Has since become the independent State of Kiribati and a Contracting State to the Convention

*** Has since become the independent State of Seychelles and a Contracting State to the Convention

**** Has since become the independent State of Solomon Islands and a Contracting State to the Convention

***** Has since become the independent State of Tuvalu

LIST OF CONTRACTING PARTIES WHICH HAVE ACCEPTED THE 1978 AMENDMENTS TO THE CONVENTION CONCERNING PROCEDURES FOR THE SETTLEMENT OF DISPUTES

	Date of deposit of acceptance
Belgium	25 November 1988
Canada	27 February 1979
Denmark	12 June 1979
France	1 October 1979
Germany, Federal Republic of	29 May 1987
Italy	30 April 1984
Japan	15 October 1980
Netherlands 1/	20 September 1979
Portugal	10 March 1989
Sweden	16 May 1980
Switzerland	15 December 1987
United Kingdom 2/	21 March 1980
United States	24 October 1980

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1/ Acceptance by the Netherlands was declared to be effective in respect of the Netherlands Antilles and, with effect from 1 January 1986, in respect of Aruba.

2/ The United Kingdom declared acceptance to be effective in respect of:

Bailiwick of Jersey
Bailiwick of Guernsey
Isle of Man
Belize*
Bermuda
British Indian Ocean Territory
British Virgin Islands
Cayman Islands
Falkland Islands and Dependencies
Hong Kong
Montserrat
Pitcairn, Henderson, Ducie and Oeno Islands
Saint Helena and Dependencies
Turks and Caicos Islands
United Kingdom Sovereign Base Areas of Akrotiri and Dhekelia in the Island of Cyprus

* Has since become the independent State of Belize

CONTRACTING PARTIES WHICH MADE A DECLARATION OF NON-ACCEPTANCE OF THE 1978 AND 1980 AMENDMENTS TO THE ANNEXES TO THE CONVENTION

(1) 1978 (Incineration) Amendments

A. Adoption

The Contracting Parties to the Convention adopted, at their Third Consultative Meeting on 12 October 1978, resolution LDC Res.5(III) concerning the prevention and control of pollution by incineration of wastes and other matter at sea. The Secretary-General transmitted the texts of the amendments to the Annexes to the Parties to the Convention for acceptance by Notes Verbales T5/5.01 (NV.2) and (NV.4) of 29 December 1978.

B. Entry into force

In accordance with the terms of the resolution and article XV(2) of the Convention the amendments entered into force on 11 March 1979 for all Contracting Parties with the exception of those referred to under (C) below.

C. Contracting Parties which made a declaration of non-acceptance

Germany, Federal Republic of[1/]

New Zealand[2/]

1/ Acceptance of the amendments by the Federal Republic of Germany was effected by deposit of an instrument on 9 May 1983 and was accompanied by the following declaration:

(Translation)

"that with effect from the day on which these amendments enter into force for the Federal Republic of Germany they shall also apply to Berlin (West)."

2/ By a communication dated 3 March 1983 the depositary was informed by the Government of New Zealand that the declaration of non-acceptance had been withdrawn with effect from 3 March 1983. Accordingly, the amendments entered into force for New Zealand on 3 March 1983.

(2) 1980 Amendments

A. Adoption

The Contracting Parties to the Convention adopted, at their Fifth Consultative Meeting on 24 September 1980 resolution LDC Red.12(V) concerning the amendment of the lists of substances contained in Annexes I and II to the Convention. The Secretary-General transmitted the texts of the amendments to the Annex to the Parties to the Convention for acceptance by Notes Verbales T5/5.01 (NV.5) of 27 January 1981, T5/5.05 (NV.1) of 13 March 1981 and T5/5.05 (NV.2) of 1 april 1981.

B. Entry into force

In accordance with the terms of the resolution and article XV(2) of the Convention the amendments entered into force on 11 March 1981 for all Contracting Parties with the exception of those referred to under (C) below.

C. Contracting Parties which made a declaration of non-acceptance:

Germany, Federal Republic of[1/]

Japan

1/ Acceptance of the amendments by the Federal Republic of Germany was effected by deposit of an instrument on 9 May 1983 and was accompanied by the following declaration:

(Translation)

"that with effect from the day on which these amendments enter into force for the Federal Republic of Germany they shall also apply to Berlin (West)."

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ANNEX 2

LIST OF INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS
WITH OBSERVERSHIP STATUS

The Twelfth Consultative Meeting decided that the following international non-governmental organizations should be invited to attend the Thirteenth Consultative Meeting and meetings of the Scientific Group on Dumping in an observer capacity (LDC 12/16, paragraph 1.21):

- International Association of Ports and Harbors (IAPH)
- European Council of Chemical Manufacturers' Federation (CEFIC)
- Friends of the Earth International (FOEI)
- Greenpeace International
- International Union for Conservation of Nature and Natural Resources (IUCN)
- Permanent International Association of Navigation Congresses (PIANC)
- Association of Maritime Incinerators (AMI)
- European Atomic Forum (FORATOM)
- Oil Industry International Exploration and Production Forum (E & P Forum)
- Advisory Committee on Pollution of the Sea (ACOPS)
- International Maritime Bureau

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ANNEX 3

RESOLUTION LDC.31(11)

AMENDMENTS TO THE GUIDELINES FOR ALLOCATION OF SUBSTANCES
TO THE ANNEXES TO THE LONDON DUMPING CONVENTION
(LDC 11/14, annex 3)

THE ELEVENTH CONSULTATIVE MEETING,

RECALLING Article XIV(4)(b) of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter which emphasizes the importance of scientific and technical advice for Consultative Meetings when considering the review of the Annexes to the Convention,

RECALLING FURTHER that Criteria for the Allocation of Substances to the Annexes of the Convention had been adopted together with guidelines thereto by the Ninth Consultative Meeting of Contracting Parties (resolution LDC.19(9)) and that these called for a continuing review for the purpose of ensuring their revision in the light of new scientific and technical developments,

RECOGNIZING the role of the Scientific Group on Dumping as the scientific body responsible for keeping under review the provisions of the Annexes to the Convention,

NOTING the proposals made by the Scientific Group on Dumping regarding clarification of the terms "bioavailability" and "significant exposures" used in the Guidelines for the Allocation of Substances to the Annexes to the London Dumping Convention:

1 AGREES to the proposals of the Scientific Group on Dumping that the text of the Guidelines relating to "bioavailability" and to "significant exposures" be amended.

2 AGREES FURTHER that the attention of all Contracting Parties should be drawn to the amended guidelines as shown in the Annex to this resolution,

3 INVITES its Scientific Group on Dumping to continue the review of the Guidelines for the purpose of ensuring their revision as and when appropriate.

ANNEX

GUIDELINES FOR ALLOCATION OF SUBSTANCES TO THE ANNEXES TO THE LONDON DUMPING CONVENTION

These guidelines are intended to allow the Scientific Group on Dumping to take into account the best available scientific and technical information, recognizing that an element of further interpretation and judgement will enter the final deliberations and decisions of the Consultative Meeting. These guidelines are not intended for use as rigid rules but should nevertheless be used as the basis for the considerations of the Scientific Group and be experimented with and adapted as necessary.

1 Criteria of relevance to risk evaluation

1.1 In the evaluation of the risks arising from the disposal of any substance, the criteria listed in paragraph 2.2 below are relevant in considering the allocation of substances to the Annexes. It should also be noted that matters related to radioactivity do not fall within the terms of reference of the Scientific Group on Dumping and were referred by agreement to other fora, bodies or organizations (e.g. the IAEA). They are not considered further in these Guidelines.

2 Classification of substances

2.1 The Annexes classify defined substances or groups of substances rather than wastes. In evaluating the risks from sea dumping of substances for the purpose of classification to or between the Annexes the following steps are required:

.1 evaluation of hazard potential;
.2 evaluation of environmental exposure; and
.3 conclusions on potential scale of effects and decision on classification.

2.2 In evaluating hazard potential the following factors must be taken into account:

.1 Persistence/degradability:

persistence is a property of a substance which reflects the degree to which it will remain in a particular state or form. In this regard elements are of course persistent but will occur in the environment in many different forms and in compounds of differing persistence and biological properties. For elements, therefore, information is needed only on the formation and transformation of bio-available and toxic forms. The term "degradable" applies only to organic compounds and refers to the breakdown of a substance by physical, chemical or biological means. While it is possible in a

laboratory to assess the intrinsic degradability of a substance by means of standardized tests, it is necessary for the purposes of the Convention to carry out additional tests which more adequately reflect the physical and chemical conditions likely to pertain in the sea. In particular, the concentration of test substances, and conditions related to organic materials and bacterial inoculum require special attention. Tests should be carried out with respect to all relevant environmental compartments;

.2 Bioaccumulation potential:

Bioaccumulation potential is generally determined by a comparison between uptake and elimination of a substance by an organism under controlled test conditions or through field observations. Bioaccumulation potential can provide a useful estimate of whether or not body burdens might reach levels that may present a hazard, either to the organism itself or to its predators. Bioaccumulation per se is however not necessarily harmful to the organism and is, for example, necessary in the uptake of essential elements by organisms;

.3 Toxicity to marine life:

toxicity testing is the measurement of deleterious biological effects of a substance under acute or under chronic exposure conditions (the latter resulting from either a continuous input of a non-persistent substance or a single input of a persistent substance). As a minimum, to assess the potential hazard of a substance to marine life, data on lethal toxicity under chronic (or at least long term) exposure conditions are needed. Preferably data on sub-lethal effects (including effects on reproduction) should also be considered, especially if chronic exposure may occur. A second minimum requirement is that these data should refer to representative organisms from at least three trophic levels (e.g. algae, crustacea and fish). Harmful effects to marine life may result from chemical and physical factors other than toxicity, and should also be considered, e.g. effects on photosynthesis, exchange of nutrients, gas, etc.;

.4 Toxicity to man, domestic animals, marine mammals and birds preying on marine organisms:

where persistent and bioaccumulative substances are concerned, information on toxicity to man, domestic animals or marine mammals is of relevance where a significant pathway through the marine environment exists. "Significance" in this respect may be related to a contribution to the acceptable daily intake (ADI) as recommended by WHO/FAO and other international organizations and agencies;

.5 Carcinogenicity and mutagenicity:

the state-of-the-art does not yet permit testing of carcinogenicity or mutagenicity to marine organisms; there is no hard evidence that these factors play a significant role in the marine environment. These factors are therefore for the moment considered to be relevant primarily in terms of possible marine pathways for the transfer to man of substances demonstrating mammalian carcinogenicity or mutagenicity;

.6 Ability to interfere with other legitimate uses of the sea:

substances may exert such effects not only through physical interference with legitimate uses of the sea but also may have aesthetic effects. This interference includes the tainting of fish and shellfish.

2.3 The factors described under .2 to .4 above (bioaccumulation potential and toxicity to marine life, marine mammals, domestic animals and man) apply to the original compound as well as to the persistent metabolites or other products of organic substances and to the different forms in which elements are present. Where tests are used to evaluate bioaccumulation, bioavailability and toxicity to marine life (points .2 and .3 above), these tests must have been undertaken using realistic concentrations, and test conditions must have adequately reflected the physical and chemical condition pertaining in the sea, especially in so far as these affect bioavailability. The chemical state and physical form of substances have an important effect on their bioavailability, toxicity, persistence and bioaccumulation potential. For the purposes of allocating substances to the Annexes, bioaccumulation potential of a substance should be evaluated without regard to any of the potential mitigative properties of different waste matrices or of the ambient environmental conditions (in which they might occur). However, the characteristics of the waste matrix and the environment will greatly affect the bioavailability of a substance. As such, bioavailability is an essential factor to consider in assessing the impact of wastes (and the substances they contain) under Annex III.

2.4 Whether or not a substance is of non-natural origin is not in itself a criterion for designation to the Annexes. However, in combination with a very low degree of (bio) degradability, extra caution may be required. This extra caution is warranted in light of the fact that substances which do not naturally occur by definition cannot be dispersed or diluted to natural background levels in the environment. Such alien substances might impose unexpected stress on marine biota and should therefore be subjected to adequate testing.

2.5 By "evaluation of environmental exposure" as referred to in paragraph 2.1.2 above, is meant the measurement or estimation of actual or potential distribution and concentration (including trends in these factors) of a substance in all relevant ecological and geographical compartments and the estimation of actual or potential contribution of dumping to local, regional or global flux. Significant environmental exposure means that

organisms are exposed to substances at such concentrations and over such time that, if the substance possesses any of the properties listed in paragraphs 2.2.2 - 2.2.6, deleterious effects are likely to occur. With regard to the relative significance of concentration, quantity or flux (that is the rate of throughput of a substance, defined as mass per unit area per unit time), for the purposes of these Guidelines, the contribution by dumping to local, regional or global flux is a relevant criterion. Measurement of concentration is required for estimating exposure, which, together with a knowledge of the relationship between effects and concentration, enable a hazard assessment to be made.

2.6 On the basis of these considerations, the potential scale of effects of dumping of a substance can be determined and decisions can be taken as to whether such substances should be included in the Annexes and to which Annex they should be designated. The criteria for making these distinctions are addressed in the following paragraphs. In taking these decisions, several elements should be borne in mind in determining the appropriate safety margin to be applied. Firstly, there is a time lag between the introduction of controls and the effects of these controls becoming evident in the environment. Secondly, there are limitations to current ability to fully predict the consequences of any disposal to the sea. Thirdly, as noted in paragraph 2.4 above, the synthetic origin of a substance may indicate the need for a more cautious approach.

3 Allocation to Annexes I and II

3.1 Substances should be allocated to the Annexes if:

.1 they are, or are proposed to be, dumped; and if

.2 significant environmental exposure may result; and if

.3 they possess any combination of the properties listed in paragraph 2.2 above in significant degree.

3.2 Annex I substances will be those for which dumping will or may result in, or contribute significantly to environmental exposure on a wide scale, extending far beyond the original location and time of disposal. They will also result in significant adverse environmental effects. Such substances will have in common a high degree of persistence coupled with:

.1 the ability to accumulate to levels significant in terms of toxicity to marine organisms and their predators, to domestic animals or to man; or

.2 the ability to accumulate through marine pathways to levels significant in terms of carcinogenicity or mutagenicity to domestic animals or to man; or

.3 the ability to cause a high degree of interference with fisheries, amenities or other legitimate uses of the sea.

3.3 Annex II substances will be all those considered suitable for inclusion in the Annexes except for those allocated to Annex I.

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ANNEX 4

PROCEDURE AND METHOD OF APPROACH FOR PREPARING AND MAINTAINING A LIST OF HAZARDOUS SUBSTANCES OR GROUPS OF SUBSTANCES (LDC V/12, annex 4)

1 The steps to be taken by the Ad Hoc Scientific Group on Dumping and proposed to the Consultative Meeting concerning the List of Hazardous Substances or Groups of Substances are as follows:

.1 Initial actions should include:

.1.1 the consideration of proposals and supporting scientific documentation submitted by Contracting Parties directly or through a Consultative Meeting; and

.1.2 the preparation of initial comments for consideration at the next Consultative Meeting; and also

.2 to invite Consultative Meetings to take the following action:

.2.1 to note the submissions and comments prepared by the Ad Hoc Group; and

.2.2 after detailed consideration, to request the Secretariat to transmit to the Contracting Parties the submissions, comments and the outcome of any considerations, asking them to provide additional information and further comments.

2 Further actions to be taken by the Consultative Meeting and its Ad Hoc Group are proposed as follows:

.1 The Ad Hoc Group will be requested to:

.1.1 review all documentation, additional proposals, as well as any comments submitted by Contracting Parties to the Secretariat in response to 1.2.2 above;

.1.2 consider carefully each submission and in a case by case study decide whether the substances or group of substances should be:

.1.2.1 proposed for inclusion in the List of Hazardous Substances;

.1.2.2 deleted from the List of Hazardous Substances;

.1.2.3 given further consideration before proposing inclusion in the List; or

.1.2.4 dropped from further consideration; and

.1.3 prepare a report on the outcome of the above consideration to the Consultative Meeting.

.2 The Consultative Meeting should be invited to:

.2.1 consider the report and recommendations, if any, made by the Ad Hoc Group with a view to approval; and

.2.2 request the Secretariat to circulate any decisions made on this matter.

3 The follow-up action of the Ad Hoc Group should include the following:

.1 keeping the List of Hazardous Substances under continuing review; and

.2 report to the Consultative Meeting on proposals concerning the addition to or deletion from the List of Substances which have been submitted by Contracting Parties.

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ANNEX 5

ANNEX III
TO THE CONVENTION ON THE PREVENTION OF MARINE POLLUTION
BY DUMPING OF WASTES AND OTHER MATTER, 1972
(LONDON DUMPING CONVENTION)

Provisions to be considered in establishing criteria governing the issue of permits for the dumping of matter at sea, taking into account Article IV(2), include:

A - Characteristics and composition of the matter

1. Total amount and average composition of matter dumped (e.g. per year).

2. Form e.g. solid, sludge, liquid or gaseous.

3. Properties: physical (e.g. solubility and density), chemical and biochemical (e.g. oxygen demand, nutrients) and biological (e.g. presence of viruses, bacteria, yeasts, parasites).

4. Toxicity.

5. Persistence: physical, chemical and biological.

6. Accumulation and biotransformation in biological materials or sediments.

7. Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials.

8. Probability of production of taints or other changes reducing marketability of resources (fish, shellfish, etc.)

B - Characteristics of dumping site and method of deposit

1. Location (e.g. co-ordinates of the dumping area, depth and distance from the coast), location in relation to other areas (e.g. amenity areas, spawning, nursery and fishing areas and exploitable resources).

2. Rate of disposal per specific period (e.g. quantity per day, per week, per month).

3. Methods of packaging and containment, if any.

4. Initial dilution achieved by proposed method of release.

5. Dispersal characteristics (e.g. effects of currents, tides and wind on horizontal transport and vertical mixing).

6. Water characteristics (e.g. temperature, pH, salinity, stratification, oxygen indices of pollution-dissolved oxygen (DO), chemical oxygen demand (COD), biochemical oxygen demand (BOD), nitrogen present in organic and mineral form including ammonia, suspended matter, other nutrients and productivity).

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7. Bottom characteristics (e.g. topography, geochemical and geological characteristics and biological productivity).

8. Existence and effects of other dumpings which have been made in the dumping area (e.g. heavy metal background reading and organic carbon content).

9. In issuing a permit for dumping, Contracting Parties should consider whether an adequate scientific basis exists for assessing the consequences of such dumping, as outlined in this Annex, taking into account seasonal variations.

C - General considerations and conditions

1. Possible effects on amenities (e.g. presence of floating or stranded material, turbidity, objectionable odour, discolouration and foaming).

2. Possible effects on marine life, fish and shellfish culture, fish stocks and fisheries, seaweed harvesting and culture.

3. Possible effects on other uses of the sea (e.g. impairment of water quality for industrial use, underwater corrosion of structures, interference with ship operations from floating materials, interference with fishing or navigation through deposit of waste or solid objects on the sea floor, and protection of areas of special importance for scientific or conservation purposes).

4. The practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the matter less harmful for dumping at sea.

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ANNEX 6

RESOLUTION LDC.32(11)

AMENDMENTS TO THE GUIDANCE FOR THE APPLICATION OF ANNEX III
(LDC 11/14, annex 4)

THE ELEVENTH CONSULTATIVE MEETING,

RECALLING Article I of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, which provides that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment,

RECALLING FURTHER that amendments to Annex III had been adopted by resolution LDC.26(10) concerning problems which had been encountered with ill-defined wastes that had been proposed for disposal at sea, and the impact of such wastes to marine life and human health,

EMPHASIZING the need that, in accordance with Annex III to the Convention, Contracting Parties, before considering the dumping or incineration of wastes at sea, should ensure that every effort has been made to determine the practical availability of alternative land-based methods of treatment, disposal or elimination of the wastes concerned,

NOTING the discussion which took place within the Scientific Group on Dumping on the need for Contracting Parties, when establishing criteria governing the issue of permits for the dumping of matter at sea, to be guided in their application of the provisions of Annex III to the Convention,

HAVING CONSIDERED the Guidelines for the Implementation and Uniform Interpretation of Annex III to the London Dumping Convention (resolution LDC.17(8)) and the proposed amendments to these guidelines prepared by the Scientific Group on Dumping,

1 ADOPTS amendments to sections A4 to A6, A9 and C4 of the Guidelines for the Implementation and Uniform Interpretation of Annex III to the London Dumping Convention,

2 RESOLVES that Contracting Parties to the Convention shall take full account of the amended Guidelines for the Implementation and Uniform Interpretation of Annex III as shown in annex when considering the factors set forth in that Annex prior to the issue of any permit for disposal and incineration of matter at sea.

ANNEX

GUIDELINES FOR THE IMPLEMENTATION AND UNIFORM INTERPRETATION OF ANNEX III* TO THE LONDON DUMPING CONVENTION

Article IV(2):	Any permit shall be issued only after careful consideration of all the factors set forth in Annex III, including prior studies of the characteristics of the dumping site, as set forth in Sections B and C of that Annex.
ANNEX III:	Provisions to be considered in establishing criteria governing the issue of permits for the dumping of matter at sea, taking into account Article IV(2), include:

Interpretation:

Each authority or authorities designated in accordance with Article VI for the issue of general and special permits for the disposal of wastes and other matter at sea shall, when considering a permit application, carefully study all the factors set out in Annex III. This includes the establishment of procedures and criteria for:

1 deciding whether an application for sea disposal should be pursued in the light of the availability of land-based disposal or treatment methods;

2 selecting a sea disposal site, including the choice and collection of relevant scientific data to assess the potential hazards to human health, harm to living resources and marine life, damage to amenities or interference with other legitimate uses of the sea;

3 choosing appropriate disposal methods and conditions;

4 developing an appropriate monitoring programme.

* For the disposal at sea of radioactive wastes additional requirements recommended by the IAEA have to be taken into account (INFCIRC/205/Add.1/Rev.1). For the control of incineration of wastes at sea specific site selection criteria have been established (Regulation 8 of Addendum to Annex 1).

The above mentioned criteria should enable permit applications to be effectively assessed and likely environmental hazards to be evaluated.

A - CHARACTERISTICS AND COMPOSITION OF THE MATTER

1	Total amount and average composition of matter [to be] dumped (e.g. per year).
2	Form, e.g. solid, sludge, liquid, or gaseous.
3	Properties: physical (e.g. solubility and density), chemical and biochemical (e.g. oxygen demand, nutrients) and biological (e.g. presence of viruses, bacteria, yeasts, parasites).

Interpretation:

In order to assess environmental transport and fate, including potential effects on water quality and biota, the total amount of wastes proposed to be dumped within a time period, and the physical, chemical and biological composition of the waste should be known. The first step for the characterization of a waste or other matter proposed for dumping at a site should be the collection of existing data on the waste composition or a waste analysis.

This should not mean that every waste should be subjected to exhaustive chemical analysis to establish the concentrations of a standard wide-ranging list of chemical elements or compounds. Knowledge of the raw materials and production processes used may often provide a key to the probable composition of the waste. A selective analysis may then be sufficient for a preliminary assessment. As a minimum, it should be established whether any Annex I or Annex II materials are present.

The analysis should include appropriate measurements of the composition of major components. In cases where anthropogenic chemicals of high toxicity are known or suspected to be involved, those minor components which are reasonably identifiable should be measured.

In addition data should, as appropriate, be obtained on physical, chemical and biological properties of the waste or other matter, such as:

- Solubility
- Percent solids
- Density (specific gravity) of bulk matter, its liquid and particle phases
- Grain size fractions of total solid phase (e.g. clay-silt/sand-gravel fractions of dredged material)
- pH
- Biochemical oxygen demand (BOD)
- Chemical oxygen demand (COD)
- Nutrients
- Microbiological components.

4	Toxicity,
5	Persistence: physical, chemical and biological,
6	Accumulation and biotransformation in biological materials or sediments.

Interpretation:

If the chemical analysis of the wastes shows the presence of substances whose biological effects are not well known, or if there is any doubt as to the exact composition or properties of the waste, if may be necessary to carry out suitable test procedures for toxicity, persistence, bioavailability and bioaccumulation, which may include the following:

1 acute toxicity tests on phytoplankton, crustaceans or molluscs, fish, or other such organisms as may be appropriate;

2 chronic toxicity tests capable of evaluating long-term sublethal effects, such as bioassays covering an entire life cycle;

3 tests to determine the potential for bioavailability and bioaccumulation of the substances contained in the waste and, if appropriate, the potential for eventual elimination. The test organisms should be those most likely to bioaccumulate the substances concerned; and

4 test for determining the persistence of substances contained in the waste. The potential for degradability of these substances should be determined using bacteria and water typical of the proposed dumping site. The tests should attempt to reflect the conditions at the proposed dumping site.

If appropriate, the test procedures described above should be carried out separately with the solid, suspended and/or liquid phases of wastes proposed for sea disposal.

A number of substances, when entering the marine environment, are known to be altered by biological processes to more toxic substances. This should be taken into particular account when the various tests mentioned above are performed.

7	Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials

Interpretation:

Substances introduced into the sea may be rapidly rendered harmless by physical, chemical and biochemical processes but others may be changed to

products with more hazardous properties than those of the original substances. In these latter cases, it may be appropriate to carry out the tests outlined in paragraph A6 above with the anticipated products.

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8 Probability of production of taints or other changes reducing marketability of resources (fish, shellfish, etc.).

Interpretation:

In evaluating the possible effects of the waste concerned on marine biota, particular attention should be paid to those substances which are known to accumulate in marine organisms with the result that seafood is tainted and rendered unpalatable. In many cases there might be a suspicion about the tainting property of a substance without the availability of firm data. In these cases a taste panel will have to determine threshold limits, if any, of the tainting properties of the substance concerned.

"Other changes reducing the marketability of resources" referred to in paragraph 8 of Section A include discolouration of fish flesh, and fish diseases such as fin rot and tumours.

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9 In issuing a permit for dumping, Contracting Parties should consider whether an adequate scientific basis exists concerning characteristics and composition of the matter to be dumped to assess the impact of the matter to marine life and to human health.*

Interpretation:

In considering disposal at sea of ill-defined wastes or waste mixtures from multiple sources, every effort should be made to obtain data on their chemical, physical and biological characteristics to assess their environmental transport, fate and effects. If a waste is so poorly characterized that proper assessment (using the foregoing guidelines) cannot be made of its potential impacts in the environment, then that waste should not be dumped at sea.

B - CHARACTERISTICS OF DUMPING SITE AND METHOD OF DEPOSIT

Matters relating to dumpsite selection criteria are addressed in greater detail in a study prepared by GESAMP** (Reports and Studies No.16: Scientific Criteria for the Selection of Waste Disposal

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* The inclusion of paragraph 9 in section A of Annex III has been approved in principle and the Twelfth Consultative Meeting has been designated for its formal adoption.

** IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution.

Sites at Sea, IMO 1982) which should be considered in conjunction with these guidelines.

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1 Location (e.g. co-ordinates of the dumping area, depth and distance from the coast), location in relation to other areas (e.g. amenity areas, spawning, nursery and fishing areas and exploitable resources).

Interpretation:

Basic site characterization information to be considered by national authorities at a very early stage of assessment of a new site should include the co-ordinates of the dumping area (latitude, longitude), as well as its location with regard to:

- distance to nearest coastline
- recreational areas
- spawning and nursery areas
- known migration routes of fish or marine mammals
- sport and commercial fishing areas
- areas of natural beauty or significant cultural or historical importance
- areas of special scientific or biological importance (marine sanctuaries)
- shipping lanes
- military exclusion zones
- engineering uses of seafloor (e.g. potential or ongoing seabed mining, undersea cables, desalination or energy conversion sites).

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2 Rate of disposal per specific period (e.g. quantity per day, per week, per month).

Interpretation:

Although the amounts of matter to be dumped (e.g. per year) are considered under paragraph A1 above, many operations, e.g. those related to dredging, are of shorter periods. In order to assess the capacity of the area for receiving a given type of material the anticipated loading rates (e.g. per day) or in the case of existing sites, the actual loading rates (frequency of operations and quantities of wastes or other matter disposed of at each operation per time period) should be taken into consideration.

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3 Methods of packaging and containment, if any.

4 Initial dilution achieved by proposed method of release.

Interpretation:

The data to be considered under this item should include information on:

- type, size and form of packaging and containment units
- presence of any Annex I or Annex II substances as packaging material or in any matrix that might be used
- marking and labelling of packages
- disposal method (e.g. jettisoning over ship's side; discharge of liquids and sludges through pipes, pumping rates, number and location of discharge pipe outlets (under or above waterline, water depth), etc.). In this connexion the length and speed of the vessel when discharging wastes or other matter should be used to establish the initial dilution.

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5 Dispersal characteristics (e.g. effects of currents, tides and wind on horizontal transport and vertical mixing).

6 Water characteristics (e.g. temperature, pH, salinity, stratification, oxygen indices of pollution - dissolved oxygen (DO), chemical oxygen demand (COD), biochemical oxygen demand (BOD) - nitrogen present in organic and mineral form including ammonia, suspended matter, other nutrients and productivity).

Interpretation:

For the evaluation of dispersal characteristics data should be obtained on the following:

- water depths (maximum, minimum, mean)
- water stratification in various seasons and weather conditions (depth and seasonal variation of pycnocline)
- tidal period, orientation of tidal ellipse, velocities of minor and major axis
- mean surface drift (net): direction, velocity
- mean bottom drift (net): direction, velocity
- storm (wave) induced bottom currents (velocities)
- wind and wave characteristics, average number of storm days per year
- concentration and composition of suspended solids.

Where the chemical composition of the waste warrants, it may be appropriate to evaluate pH, suspended solids, persistent organic chemicals, metals, nutrients and microbiological components. BOD and COD or organic carbon determinations in the suspended or dissolved phase, together with oxygen measurements, may also be appropriate where organic wastes or nutrients are concerned.

7	Bottom characteristics (e.g. topography, geochemical and geological characteristics and biological productivity).

Interpretation:

Maps and bathymetric charts should be consulted and specific topographic features which may affect the dispersal of wastes (e.g. marine canyons) should be identified.

The geochemical observations of sediments in and around the disposal site should be related to the type of waste(s) involved. The range of chemical constituents should be the same as that provided for the characterization of the waste or other matter, with the minimum range of data set out in paragraph A1 above.

In areas where wastes may reach the bottom, sediment structure (i.e. the distribution of gravel, sand, silt and clay) as well as benthic and epibenthic community characteristics should be considered for the site area.

Mobility of sediments due to waves, tides or other currents should be considered in any waste disposal site assessments. The possibility of seismic activities in the area under consideration should be investigated, in particular when hazardous wastes in packaged form are concerned. The distribution of sediment types in an area provides basic information as to whether dumped solids with certain characteristics will accumulate at a site or be dispersed.

Sorption/desorption processes under the range of dump site redox and pH conditions, with particular reference to exchanges between dissolved and fine particulate phases, are relevant to the evaluation of the accumulative properties of the area for the components of the waste proposed for dumping and for their potential release to overlying waters.

8	Existence and effects of other dumpings which have been made in the dumping area (e.g. heavy metal background reading and organic carbon content).

Interpretation:

The basic assessment to be carried out of a site, either a new or an existing one, shall include the consideration of possible effects that might arise by the increase of certain waste constituents or by interaction (e.g. synergystic effects) with other substances introduced in the area, either by other dumpings or by river input and discharges from coastal areas, by exploitation areas, and maritime transport as well as through the atmosphere. The existing stress on biological communities as a result of such activities should be evaluated before any new or additional disposal operations are established. The possible future uses of the sea area should be kept under consideration.

Information from baseline and monitoring studies at already established dumping sites will be important in this evaluation of any new dumping activity at the same site or nearby.

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9 In issuing a permit for dumping, Contracting Parties should consider whether an adequate scientific basis exists for assessing the consequences of such dumping, as outlined in this Annex, taking into account seasonal variations.

Interpretation:

When a given location is first under consideration as a candidate disposal site, the existing data basis should be evaluated with a view to establishing whether the main characteristics are known in sufficient detail or accurately enough for reliable modelling of waste effects. Many parameters are so variable in space and time that a comprehensive series of observation have to be designed to quantify the key properties of an area over the various seasons.

If at any time, monitoring studies demonstrate that existing disposal sites do not satisfy these criteria, alternative disposal sites or methods should be considered.

C - GENERAL CONSIDERATIONS AND CONDITIONS

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1 Possible effects on amenities (e.g. presence of floating or stranded material, turbidity, objectionable odour, discolouration and foaming).

2 Possible effects on marine life, fish and shell fish culture, fish stocks and fisheries, seaweed harvesting and culture.

Interpretation:

Particular attention should be given to those waste constituents which float on the surface or which, in reaction with sea water may lead to floating substances and which, because they are confined to a two-dimensional rather than a three-dimensional medium, disperse very slowly. The possibility of reaccumulation of such substances caused by the presence of surface convergences which may lead to interferences with amenities as well as with fisheries and shipping should be investigated.

Information on the nature and extent of commercial and recreational fishery resources and activities should be gathered.

Body burdens of persistent toxic substances (and, in the case of shellfish, pathogens) in selected marine life and, in particular, commercial food species from the dumping area should be established.

Certain grounds although not in use for fishing may be important to fish stocks as spawning, nursery or feeding areas, and the effects of sea disposal on these grounds should be considered.

The effects which waste disposal in certain areas could have on the habitats of rare, vulnerable or endangered species should be recognized.

Besides toxicological and bioaccumulation effects of waste constituents other potential impacts on marine life, such as nutrient enrichment, oxygen depletion, turbidity, modification of the sediment composition and blanketing of the sea floor, should be addressed.

It should also be taken into account that disposal at sea of certain substances may disrupt the physiological processes used by fish for detection and may mask natural characteristics of sea water or tributary streams, thus confusing migratory species which consequently lose their direction, go unspawned or fail to find food.

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3 Possible effects on other uses of the sea (e.g. impairment of water quality for industrial use, underwater corrosion of structures, interference with ship operations from floating materials, interference with fishing or navigation through deposit of waste or solid objects on the sea floor and protection of areas of special importance for scientific or conservation purposes).

Interpretation:

Consideration of possible effects on the uses of the sea as outlined in paragraph C3 should include interferences with fishing, such as the damaging or fouling of fishing gear. Any possibility of excluding the future uses of the sea dumping area for other resources, such as water use for industrial purposes, navigation, erection of structures, mining, etc., should be taken fully into account.

Areas of special importance include those of interest for scientific research or conservation areas and distinctive habitats of limited distribution (such as seabird rookeries, kelp beds or coral reefs); information should also be provided on all distinctive habitats in the vicinity of the proposed site which might be affected by the material to be dumped. Attention should also be given to geological and physiographical formations of outstanding universal value from the point of view of science, conservation or natural beauty.

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4 The practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the matter less harmful for dumping at sea.

Interpretation:

1 Dumping of wastes and other matter at sea

Before considering the dumping of matter at sea every effort should be made to determine the practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the matter less harmful for dumping at sea.

The practical availability of other means of disposal should be considered in the light of a comparative assessment of:

- Human health risks
- Environmental costs
- Hazards (including accidents) associated with treatment, packaging, transport and disposal
- Economics (including energy costs)
- Exclusion of future uses of disposal areas,

for both sea disposal and the alternatives.

If the foregoing analysis shows the ocean alternative to be less preferable, a licence for sea disposal should not be given.

2 Incineration of wastes and other matter at sea

Recognizing the provisions of Regulation 2(2) of the Regulations for the Control of Incineration of Wastes and Other Matter at Sea, the appropriate authorities should ensure that, before considering the incineration of wastes at sea, every effort has been made to determine the practical availability of alternative land-based methods of treatment, disposal or elimination of the wastes concerned.

Accordingly, authorities should take appropriate steps to ensure that the generators of those wastes that are proposed for incineration at sea have applied the generally accepted hierarchy of waste management in their assessment of alternative technologies.

The hierarchy is described as follows:

Existing and developing methods for managing hazardous wastes are commonly organized into a hierarchy that accords preferred status to methods that reduce risk by reducing the quantity and degree of hazard of a waste.

The highest tier in the hierarchy includes those methods - collectively referred to as reduction - that actually avoid the generation of waste. Techniques that reuse or recover wastes after they are generated occupy the next tier. Techniques that treat or destroy wastes are preferred over those that merely contain or actually disperse wastes into the environment.

Specific technological approaches which have been shown to achieve significant reductions in the amounts of hazardous waste include process and equipment changes, chemical substitution, product reformulation, as well as a variety of maintenance, operational and housekeeping changes as well as waste reuse.

It should, however, be recognized that some countries producing wastes that need to be destroyed by incineration, either do not possess suitable land-based incinerators or have limited capacity at such facilities. Furthermore, export of wastes to land-based incinerators in other countries may be restricted by legal, economic or other factors including available capacities and national priorities. These circumstances may, in certain cases, constitute grounds for concluding that practical alternatives to incineration at sea are not available. Nevertheless, permits for incineration at sea should not be issued unless conformity with the Regulations for the Control of Incineration of Wastes and Other Matter at Sea, and the Technical Guidelines thereto, can be assured.

In applying the hierarchy of waste management, alternatives to incineration of wastes at sea should also be considered in the light of comparative assessment of:

- Human health risks;
- Environmental costs;
- Hazards (including accidents) associated with treatment, packaging, transport and disposal;
- Economics (including energy costs);
- Exclusion of future uses of incineration sites

for both incineration at sea and the alternatives.

If the foregoing analysis shows the ocean alternative to be less preferable, a licence for incineration at sea should not be given.

Where it is determined that alternatives to incineration at sea are, in practice, not available, emphasis should be placed on the introduction of improved waste management procedures with particular attention being given to the application of the hierarchy of waste management described above. If it is predicted that, despite the application of waste management procedures, arisings of wastes requiring incineration are likely to be maintained, or to increase significantly, consideration should be given to establishing suitable land-based alternatives, or increasing their capacity, to meet national requirements.

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ANNEX 7

INTERIM PROCEDURES AND CRITERIA FOR DETERMINING EMERGENCY SITUATIONS*
(LDC V/12, annex 5)

1 INTRODUCTION

1.1 Under Article V(2), a Contracting Party may issue a special permit for the dumping of wastes or other matter listed in Annex I in emergencies posing an unacceptable risk relating to human health and admitting no other feasible solution. Before doing so the Contracting Party is obliged to consult any other country or countries that are likely to be affected and the Organization which, after consulting other Contracting Parties and international organizations as appropriate, shall, in accordance with Article XIV promptly recommend to the Contracting Party the most appropriate measures to adopt.

1.2 In this connexion Article XIV(4)(e) states that Contracting Parties may develop or adopt, in consultation with appropriate international organizations, procedures referred to in Article V(2) including:

.1 basic criteria for determining exceptional or emergency situations; and

.2 procedures for consultative advice and safe disposal of matter in such circumstances, including the designation of appropriate dumping areas.

2 ACTION REQUIRED TO IMPLEMENT ARTICLE V(2)

2.1 In the implementation of the above provisions the following sequence of actions can be envisaged:

.1 In order to decide that an emergency does in fact exist, the Contracting Party proposing to issue a permit for the dumping at sea of Annex I materials would:

.1.1 investigate the situation to decide whether or not it poses an unacceptable risk relating to human health; and

.1.2 investigate possible alternative methods of disposal in order to decide that no feasible solution other than dumping at sea can be found.

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* Originally distributed under LDC V/12, Annex 5

.2 Having decided that disposal at sea is necessary, the Contracting Party concerned would:

.2.1 consult with other countries that may be affected; and

.2.2 consult with the Organization for recommendations as to the most appropriate procedures to adopt.

.3 Upon being informed of the situation, the Organization would:

.3.1 consult with other Parties;

.3.2 consult with other appropriate international organizations; and

.3.3 decide upon and promptly recommend to the Contracting Party the most appropriate procedures to adopt.

.4 In issuing the special permit for the dumping operation the Contracting Party concerned would:

.4.1 follow the Organization's recommendations to the maximum extent feasible consistent with the time within which action must be taken and with the general obligation to avoid damage to the marine environment; and

.4.2 inform the Organization of the action taken.

2.2 For Contracting Parties being also Contracting Parties to a regional agreement on the prevention of marine pollution by dumping, a consultation procedure adopted within that regional agreement may be substituted for the above procedures provided that it is consistent with the requirements set out below. The Secretariat of the regional agreement will immediately submit any information on emergency situations to the Organization, which will then follow, as necessary and appropriate, the procedures developed within the framework of the London Dumping Convention taking into account the procedure being followed under the regional agreement.

3 ACTION BY THE PARTY CONCERNED

3.1 Assessment of the Emergency Situation

3.1.1 With reference to paragraph 2.1.1 above, it is apparent that when an emergency situation involving Annex I materials occurs, the first step to be taken by the Contracting Party is to assess the risk to human health. Such assessment should include the following factors:

.1 The circumstances of the emergency:

.1.1 type including chemical composition of material involved;
.1.2 location and cause of release;
.1.3 amount lost into the environment; and
.1.4 potential for further release and expected rate.

.2 The risks relating to human health with regard to:

.2.1 toxicity to human life:
- by inhalation
- by ingestion
- by skin absorption;

.2.2 method of contact:
- direct contact with material
- water supply
- food source

.2.3 the impact on health of present and future generations:
- chronic toxicity
- carcinogenic, teratogenic and mutagenic properties of the material
- potential for causing long-term effects.

3.1.2 The feasibility of disposal at sea should only be considered by the Contracting Party after an evaluation of alternative methods of disposal, taking into account the following factors:

.1 Alternatives to be considered including costs as follows:

.1.1 land fill and soil disposal;
.1.2 well injection;
.1.3 incineration on land or at sea;
.1.4 reclamation and recycling
.1.5 biological, chemical or physical treatment;
.1.6 storage;
.1.7 partial treatment prior to ocean disposal.

.2 The assessment of environmental impact of each alternative:

.2.1 adverse environmental effects of alternative actions;
.2.2 impact on living and non-living marine resources, navigation, recreation and other uses of the ocean; and
.2.3 evaluation to determine which alternative has least overall environmental impact.

.3 The disposal site designation and monitoring:

.3.1 physical, chemical and biological information relating to the proposed dump site;
.3.2 proposed method of release of material at the site;
.3.3 proposed times and dates of disposal; and
.3.4 monitoring to assess the impact of the material on the marine environment.

3.2 Consultation with other countries which may be affected

3.2.1 With reference to paragraph 2.1.2.1 above, once it has been determined that an unacceptable risk to human health exists and that ocean disposal is the only feasible solution the Contracting Party should consult with other

countries which may be affected. All the significant information used in making the determination, listed in paragraph 3.1.1 above, should be provided and include:

.1 type including chemical composition of material;
.2 amount of material to be dumped, location of disposal site and dates of disposal;
.3 risk to human health;
.4 adverse impact on the marine environment;
.5 alternatives considered;
.6 potential impact of action on other countries;
.7 proposed actions to minimize potential adverse impacts; and
.8 proposed monitoring programme to determine impact.

3.3 Consultation with the Organization

3.3.1 With reference to 2.1.2.2 above, the information provided to the Organization initially by the Contracting Party proposing dumping will be dependent upon the urgency of the emergency situation. As a minimum the information provided to other countries (paragraph 3.2 above) should be submitted to the Organization and also include:

.1 countries the Party has consulted with;
.2 recommendations of the other countries;
.3 extent to which the recommendations have been adopted.

3.3.2 In addition, the Contracting Party should submit to the Organization all significant information mentioned in paragraph 3.2.2 above.

4 ACTION TO BE TAKEN BY THE ORGANIZATION

4.1 Consultation within the Organization

4.1.1 In implementation of paragraph 2.1.3 above the Organization might undertake a sufficient review of the submissions by the Contracting Party to ensure that it has done the following:

.1 demonstrated an unreasonable risk to human health;
.2 evaluated other alternatives and found no other feasible solution;
.3 avoided damage to the marine environment to the maximum extent possible;
.4 established procedures to monitor the impact of the proposed action; and
.5 consulted with other countries that may be affected and incorporated their recommendations into the proposed action.

4.1.2 If the Organization finds that further review and analysis is needed, the following action should be taken:

.1 refer specific questions to appropriate international organizations;
.2 consult with other Contracting Parties or countries which may be affected;
.3 consult with independent experts nominated by Contracting Parties.

4.2 Recommendations by the Organization

4.2.1 The Organization should, after consultation with other international organizations, experts and Contracting Parties, recommend appropriate procedures which should be adopted by the Contracting Party prior to disposal. Due account should also be taken of any recommendations made by countries which may be affected by the proposed action.

5 REPORTING BY THE PARTY ON ACTION TAKEN

5.1 The Party should inform the Organization forthwith of the action taken and any additional facts relating to the disposal of the material. The Secretariat should inform all Parties of the emergency situation and actions taken as soon as practicable.

6 PROCEDURE FOR CONSULTATION

6.1 With a view to facilitating consultation between Contracting Parties and international organizations, it would seem appropriate for each Contracting Party to designate a specific officer to act as a "focal point" for all communications of this nature. The Secretariat would collect the requisite information from Governments (name, designation, address, telephone and telex numbers, etc.) and prepare a comprehensive list for circulation to all concerned. The Secretariat would also communicate with other organizations such as UNEP, WHO, FAO, UNESCO/IOC and IAEA in order to arrange for the nomination of a suitable "focal point" in each case to expedite consultations relative to the Convention.

6.2 Upon being informed by the Contracting Party concerned of the circumstances of the emergency situation including the views of other States consulted by the Contracting Party, the Secretariat should proceed to arrange for consultations with a view to formulating appropriate recommendations. The procedure for consultation might be according to one of the following alternatives:

.1 convening a Special Meeting of Contracting Parties in accordance with Article XIV(3)(a) of the Convention to consider the problem; or

.2 establishing a smaller Panel of Contracting Parties which could be convened or consulted by the Secretariat at short notice.

6.3 The choice between alternatives 6.2.1 and 6.2.2 above would depend on the time available for consultation. If a special meeting is convened, provision for establishing a smaller panel might also be made for use in urgent cases, it being understood that the recommendations made by the Panel in such cases could be reviewed by all Parties at the next regular Consultative Meeting.

6.4 It also seems possible that consultation with other international organizations might proceed simultaneously with consultation with other Contracting Parties, either by the attendance of representatives of the organizations concerned at meetings of the Parties or by making direct enquiries on specific questions by telephone or telex as and when required. The Contracting Parties might also consider the possibility of inviting countries likely to be affected to be represented at such meetings during consideration of the proposed dumping.
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6.5 To facilitate the consideration of future cases involving emergency disposal of prohibited substances, the Secretariat will assemble and keep on file for ready reference, useful information and data relating to Annex I substances, particularly with regard to their hazards to human health, living marine resources and amenities, together with information on actual cases dealt with, including details of methods of disposal adopted, etc.

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ANNEX 8

RESOLUTION LDC.24(10)

GUIDELINES FOR THE IMPLEMENTATION OF PARAGRAPHS 8 AND 9
OF ANNEX I TO THE LONDON DUMPING CONVENTION
(LDC 10/15, annex 3)

THE TENTH CONSULTATIVE MEETING,

RECALLING that pursuant to Article IV of the Convention the dumping of wastes or other matter listed in Annex I is prohibited,

RECOGNIZING that by virtue of Annex I, paragraphs 8 and 9, a number of substances listed in Annex I may be dumped at sea in cases where they are rapidly rendered harmless in the sea or where they are contained in wastes or other materials as trace contaminants.

RECALLING that the Fourth Consultative Meeting adopted Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I to the London Dumping Convention,

RECALLING FURTHER that specific Guidelines for the Application of the Annexes to the Disposal of Dredged Material have been adopted by this Consultative Meeting and that these include provisions for the disposal at sea of dredged material containing Annex I substances which are rapidly rendered harmless or are contained in dredged material as trace contaminants,

NOTING that a new set of Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I to the London Dumping Convention have been developed by the Scientific Group on Dumping excluding consideration of disposal at sea of dredged material because such dumping is addressed in the specific Guidelines mentioned above,

ADOPTS the Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I to the London Dumping Convention, as shown in Annex hereto, and

INVITES Contracting Parties to implement the Guidelines and to report on experiences gained with the Guidelines to the Consultative Meeting with a view to initiating their further refinement and improvement.

ANNEX

GUIDELINES FOR THE IMPLEMENTATION OF PARAGRAPHS 8 AND 9 OF ANNEX I TO THE LONDON DUMPING CONVENTION

1 Introductory note

These Guidelines apply to all wastes and other matter with the exception of dredged material. For guidance on the implementation of paragraphs 8 and 9 of Annex I to the Convention related to dredged material, reference should be made to the Guidelines for the Application of the Annexes to the Disposal of Dredged Material (resolution LDC.23(10).

2 Conditions under which permits for dumping of wastes and other matter containing Annex I substances may be issued

2.1 Under article IV(1)(a) of the Convention the dumping of waste or other matter containing substances listed in Annex I is prohibited, except that such prohibition does not apply to:

.1 Annex I substances which are rapidly rendered harmless by physical, chemical or biological processes in the sea provided they do not (i) make edible marine organisms unpalatable; or (ii) endanger human health or that of domestic animals (paragraph 8 of Annex I); or

.2 wastes or other materials, such as sewage sludge, which may contain matters listed in paragraphs 1 to 5 of Annex I as trace contaminants (paragraph 9 of Annex I).

2.2 A Contracting Party may issue a special or general permit for the dumping of waste containing an Annex I substance provided that the substance is determined to be rapidly rendered harmless or to be present as a trace contaminant and that the requirements of Annex II and Annex III have been met.

2.3 It is recognized that for many of these wastes practical alternative methods of treatment, disposal or elimination or of treatment to render the matter less harmful for dumping at sea might be available on land and these alternative methods should be pursued as required by the Convention.

3 Evaluation of "trace contaminants" and "rapidly rendered harmless"

3.1 In the context of paragraph 1(a), Annex I substances may be regarded as meeting the requirements of Annex I, paragraph 8, if tests of the waste or other matter proposed for dumping, including tests on the persistence of the material, show that the substances can be dumped so as not to cause acute or chronic toxic effects or bioaccumulation in sensitive marine organisms typical of the marine ecosystem at the disposal site.

3.2 In the context of paragraph 1(b), Annex I substances listed in paragraphs 1, 2, 3 and 5 of Annex I shall not be regarded as "trace contaminants" under the following three conditions:

.1 if they are present in otherwise acceptable wastes or other materials to which they have been added for the purpose of being dumped;

.2 if they occur in such amounts that the dumping of the wastes or other materials could cause undesirable effects, especially the possibility of chronic or acute toxic effects on marine organisms or human health whether or not arising from their bioaccumulation in marine organisms and especially in food species; and

.3 if they are present in such amounts that it is practical to reduce their concentrations further by technical means.

3.3 The procedures and tests described in the following sections are considered to apply equally to the interpretation of "harmlessness" (paragraph 8 of Annex I) and "trace contaminants" (paragraph 9 of Annex I).

4 Test procedures to be employed

4.1 Test procedures should be designed and run so as to provide evidence of the potential for acute or chronic toxic effects, the persistence of the material (where appropriate), inhibition of life processes, and bioaccumulation under the proposed disposal conditions.

4.2 For sewage sludge the test procedures may not be needed if chemical characterization of the material and knowledge of the receiving area allows an assessment of the environmental impact.

4.3 The test procedures used should be:

.1 those described in Appendix 1 and, when appropriate,

.2 those procedures acceptable to neighbouring States (in appropriate cases through a regional convention) which may be affected by the proposed disposal, including tests and effects on animals from the affected zone.

4.4 The Organization should be notified of the test procedures to be adopted by a Contracting Party.

5 Procedures for consultation

5.1 When acceptable test procedures referred to in section 4 above are used and the results of tests show that the material is not persistent and would appear not to cause acute or chronic toxic effects or bioaccumulation in sensitive marine organisms typical of the marine ecosystem at the disposal site and especially in food species, and on human health, consultation with other Contracting Parties is not required. If such a permit is issued for other than sewage sludge, notifiable particulars of the permit and the information required in appendix II should be submitted immediately to the Organization for circulation to other Parties as information.

5.2 If the Contracting Party has doubts about the results of the tests referred to in section 4 above, the Contracting Party should consult with the Organization, other Parties and international organizations as appropriate, as provided for under article XIV, before issuance of the permit.

5.3 The Contracting Party intending to pursue the above consultation should submit to the Organization sufficient information to assist in determining whether the substances may be rapidly rendered harmless or are present in trace contaminants, including the information required in appendix 2.

5.4 The Organization, upon being informed by a Party that consultation is necessary, may:

.1 convene a Special Meeting of Contracting Parties in accordance with article XIV(3)(a) of the Convention to consider the problems; or

.2 establish a Panel of Contracting Parties which could be convened or consulted by the Secretariat at short notice.

5.5 The Organization should, after consultation with other organizations, experts and Parties, make recommendations as to whether or not the waste in question may be dumped and, if so, on appropriate procedures which should be adopted by the Party prior to disposal.

5.6 The Contracting Party should inform the Secretariat of the actions taken following the recommendations of the Organization and, if a permit is issued, should notify the permit details to the Organization as well as any other information listed in appendix 2 and not already notified under paragraph 5.3 above. The Organization shall circulate this information to other Parties.

5.7 Annual reports on dumping prepared by the Secretariat for circulation to the Contracting Parties should include a summary of permits for dumping of Annex 1 substances which have been issued in accordance with the consultation procedures of these Guidelines.

5.8 If a Contracting Party to the London Dumping Convention is also a Party to a regional convention and has followed a consultative procedure under a regional convention, such procedure may be substituted for the procedures set out in paragraphs 5.2 to 5.7 above. The Secretariat of the regional convention should inform the Organization of the result of the consultation which has taken place.

APPENDIX 1

TEST PROCEDURES FOR THE INTERPRETATION OF "TRACE CONTAMINANTS" AND "HARMLESSNESS" IN REGARD TO ANNEX 1, PARAGRAPHS 8 AND 9

1 GENERAL PROVISIONS

1.1 Each Contracting Party may develop and use individually or through a regional convention test procedures as laid down in section 4 of the Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I to the London Dumping Convention.

1.2 Such test procedures may include, as appropriate, chemical characterization of the material, bioassays of the material, application of emission standards or environmental quality criteria in use by the Contracting Party, scientific literature or the results of field surveys of the proposed disposal site or a similar marine environment. For the initial evaluation of an industrial waste containing Annex I substances, the tests of paragraph 2.1.1 of this appendix shall be used. Some of the tests may be augmented by new scientific developments, e.g. predictions from structure/activity relationships and environmental models.

1.3 Each Contracting Party should notify the Organization of the test procedures adopted and, upon request, should provide to the Organization or other Contracting Parties copies of those specific test procedures.

2 SPECIFIC CONSIDERATIONS

2.1 Test procedures

2.1.1 Test procedures should include the following:

.1 acute toxicity tests on plankton, crustaceans or molluscs, and fish;

.2 chronic toxicity tests capable of evaluating long-term sublethal effects, such as bioassays covering an entire life cycle;

.3 tests to determine the potential for bioaccumulation of substances listed in Annex 1 and, if appropriate, the potential of elimination. The test organisms should be those most likely to bioaccumulate Annex I substances; and

.4 tests for determining the persistence of Annex I substances. Potential for degradability of Annex I substances should be determined where appropriate. The tests should reflect the conditions at the dumping site.

2.2 Dilution and dispersion of the dumped material

In applying the results of tests to predict the environmental impact of the proposed disposal, the method of disposal and the dilution of the waste that would result after dumping should be considered. The rate of dilution and dispersion actually occurring after dumping will depend on many factors, but will often include an initial period of rapid mixing and reduction of concentration of the dumped material followed by a period in which concentrations of the dumped material decrease at a much lower rate. In such cases the allowance for initial mixing should be based on the rate and time of the initial period of rapid mixing.

2.3 Chemical characterization of the dumped material

Chemical characterization of wastes is required by Annex III. Chemical analysis of the liquid and solid phases of the wastes may be used to evaluate the potential for biological effects and persistence of Annex I substances in the dumped materials, where sufficient experience has been gained for the type of waste involved through test procedures or field surveys described in the relevant sections of this appendix.

2.4 Application of the results of field surveys

2.4.1 Data collected from field surveys of disposal sites may provide a direct measurement of the impact of Annex I substances on the marine environment.

2.4.2 Field survey data may be used as part of acceptable test procedures (see paragraph 1.2) when the following conditions are met:

.1 the disposal site from which the data were collected is the same as that to be used for the proposed dumping, or is similar in environmental characteristics to the proposed disposal site;

.2 the disposal site from which the data were collected has had wastes containing Annex I substances dumped there recently enough to cause impacts of the type listed in paragraph 4.1 of the Guidelines; and

.3 the data collected are adequate to make a determination in regard to the impacts listed in paragraph 4.1 of the Guidelines.

APPENDIX 2

BASIC INFORMATION TO BE PROVIDED FOR THE IMPLEMENTATION OF PARAGRAPHS 8 AND 9 OF ANNEX I OF THE LONDON DUMPING CONVENTION

1 INTRODUCTION

The purpose of the following procedures is to give guidance on the appraisal of such wastes for which dumping has to be considered and the presentation of the evidence in support of the proposal to dump. The test procedures advocated can only produce scientific evidence on which to base a decision. They are to some extent still experimental and experience is necessary as regards their practical application and the interpretation of the results. They cannot give conclusive proof that a substance is biologically harmless, especially in the longer term. Scientifically such proof is impossible, the tests can only provide evidence for judging whether the environmental risk is acceptable or not.

2 REQUIRED INFORMATION

The following paragraphs draw attention to the more important aspects of the appraisal and set out the headings under which information is required:

2.1 Alternative disposal options

Itemize all of the alternative methods which have been considered and rejected, e.g. treatemnt, storage, destruction or disposal on land. Give the reasons for the rejection in each case.

2.2 Origin of waste

Give a description of the process from which the waste is derived to indicate the possible nature of the waste. It is not necessary to set out the process in detail.

2.3 Amount of waste

Give:

.1 the total amount of waste expected to arise annually;
.2 the frequency of dumping; and
.3 the amount to be dumped on each occasion.

2.4 Form in which the waste is presented for dumping

State the form of the waste, quantify the maximum amount of solids present and give information on particle sizes.

2.5 Chemical composition

Give the chemical identification of compounds present in the liquid and solid phases and the quantification of these compounds. Specify the analytical methods used, including information on detection limits, precision and accuracy, as appropriate.

2.6 Physico/chemical characteristics

Give pH and other physico/chemical characteristics of the waste, e.g. specific gravity, volatility, solubility, and of its specific compounds.

2.7 Results of test procedures

Results of tests performed in accordance with appendix I should be reported.

2.8 Other relevant information and data

Give any other relevant information, e.g. possibility of taining; other sources of pollutants in the disposal area and all other information required by Annex III of the Convention.

2.9 Characteristics of proposed disposal area

Give the geographical limits of the proposed dumping area using co-ordinates. Give the depth and dynamics of the area, the characteristics of the sedimemnts, etc. and any other information relevant to the selection of the area proposed for dumping, e.g. absence of spawning grounds, nursery areas, fishery activities, migratory routes, etc.

2.10 Overall assessment of the information

In this section bring together all the information gathered and set out the reasons why it is considered that a permit should be given.

2.11 Details of proposed dumping operation and proposed subsequent action

Give the conditions which will be imposed on the dumping operation, e.g. duration of licence, frequency of dumping, method of discharge, speed of vessel, whether or not containerized, supervision, etc. Finally give information on proposed post operational monitoring which will be carried out.

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ANNEX 9

RESOLUTION LDC Res.9(V)

PROCEDURES FOR THE CIRCULATION OF PROPOSED AMENDMENTS
TO THE LONDON DUMPING CONVENTION
(LDC V/12, annex 2)

THE FIFTH CONSULTATIVE MEETING,

NOTING that Article XV of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter prescribing procedures for amending the Convention does not establish a period for circulation of proposed amendments to Contracting Parties prior to the consideration of the amendments at a Consultative or Special Meeting,

RECOGNIZING the need that any proposed amendment to the Convention should be circulated to Contracting Parties well in advance of a Consultative or Special Meeting to enable them to give thorough consideration to such proposed amendment within their administrations,

RECALLING Resolution LDC Res.10(V) by which the Fifth Consultative Meeting adopted a procedure for the preparation and consideration of amendments to Annexes to the London Dumping Convention,

ADOPTS procedures for the circulation of proposed amendments to the Convention and its Annexes in accordance with Article XV as follows:

(a) Any amendment to the Convention proposed by a Contracting Party and transmitted to the Secretary-General of the Organization, shall be circulated to all Contracting Parties at least six months prior to its consideration by a Consultative or Special Meeting in accordance with Article XV(1)(a);

(b) Any amendment to the Annexes to the Convention proposed by a Contracting Party and transmitted to the Secretary-General, shall be circulated to all Contracting Parties at least three months prior to its consideration by a Consultative or Special Meeting in accordance with Article XV(2),

RESOLVES to consider at a future Consultative or Special Meeting amendments to Article XV(1)(a) and XV(2) incorporating the above procedures,

INVITES Contracting Parties to implement the above procedures pending the adoption and entry into force of the above mentioned amendments to the Convention.

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ANNEX 10

RESOLUTION LDC Res.10(V)

PROCEDURE FOR PREPARATION AND CONSIDERATION OF AMENDMENTS TO ANNEXES TO THE LONDON DUMPING CONVENTION (LDC V/12, annex 3)

THE FIFTH CONSULTATIVE MEETING,

NOTING Article XIV(4)(a) and (b) of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter concerning the function of the Consultative Meeting on the review and adoption of amendments to Annexes to the Convention in collaboration with an appropriate scientific body,

RECOGNIZING that, whilst Annexes to the Convention may need to be amended from time to time, each Contracting Party requires sufficient time to consider both the implications and the detailed wording of any proposed amendment,

RECOGNIZING FURTHER that frequent amendments to annexes may cause procedural and administrative difficulties for Contracting Parties in accepting and implementing such amendments,

ADOPTS the procedure for the preparation and consideration of amendments to Annexes to the Convention as set out in the Annex to this Resolution,

INVITES Contracting Parties to implement the above procedure.

ANNEX

PROCEDURE FOR PREPARATION AND CONSIDERATION OF AMENDMENTS TO THE ANNEXES TO THE LONDON DUMPING CONVENTION

1 Any amendment to an Annex to the Convention proposed by a Contracting Party will be referred to the Ad Hoc Scientific Group (or any other appropriate Expert Group) for consideration from a scientific point of view.

2 The Ad Hoc Scientific Group (or any other appropriate Expert Group) will bring forward to a Consultative Meeting for consideration any proposed amendment it regards as desirable from a scientific point of view.

3 Any proposed amendment which will be brought forward to a Consultative Meeting for consideration shall be circulated to all Contracting Parties at least three months prior to the Consultative Meeting.

4 Any Consultative Meeting may approve an amendment to the Annexes to the Convention in principle by a two-thirds majority and designate a future Consultative Meeting at which the amendment will be considered with a view to formal adoption.

5 When an amendment has been adopted in principle, the Secretary-General shall circulate the amendment to all Contracting Parties:

.1 notifying them of the designated Consultative Meeting at which the amendment will be considered with a view to formal adoption;

.2 inviting them to implement the amendment on a voluntary basis; and

.3 requesting them to indicate in writing if they do not expect to be in a position to adopt the amendment at the designated Consultative Meeting.

6 In general designated Consultative Meetings for formal adoption of amendments should not be scheduled more frequently than every third year.

7 In exceptional circumstances any Consultative Meeting may, if it regards such action as urgent, consider the immediate formal adoption of proposed amendments submitted in accordance with paragraph 3 above.

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ANNEX 11

PROCEDURE FOR THE NOTIFICATION OF PERMITS ISSUED FOR THE DUMPING OF WASTES AND OTHER MATTER AT SEA
(LDC 12/16, annex 2*)

1 INTRODUCTION

1.1 Notification of General Permits issued

The Contracting Parties should send to the Organization, either directly or through a Secretariat established under a regional agreement, by 1 August in each year a record of the General Permits issued in the previous calendar year.

1.2 Notification of Special Permits issued

The Contracting Parties should immediately notify the Organization of each Special Permit issued.

1.3 Details to be notified

The notifications should contain the information requested by the format set out below for each Special and General Permit (unless in any case a particular item of information is clearly inappropriate). Examples for different types of wastes and other matter are shown in section 3 below. These examples are given solely to illustrate the degree of detail expected under certain headings; they have no other significance.

2 FORMAT FOR THE NOTIFICATION OF GENERAL AND SPECIAL PERMITS

.1 Issuing Authority.
.2 Permit start date/Permit expiry date.
.3 Country of origin of wastes or other matter and port of loading.
.4 Detailed specification of waste or other matter and description of the process from which the waste or other matter is derived.
.5 Form in which waste or other matter is presented for disposal, i.e., solid, liquid or sludge (in case of liquids or sludges include weight per cent of insoluble compounds).
.6 Total quantity (in metric tonnes**) of waste or other matter covered.
.7 Expected frequency of dumping.

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* An amended version of the Interim Procedure for Notification of LDC I/16, Annex IV.

** Preferably in metric tonnes; if given in cubic metres, additional information on relative density (specific gravity) should be provided under 2.9

.8 Chemical composition of waste or other matter (this should be sufficiently detailed to provide adequate information, in particular with regard to the concentration of substances listed in Annexes I and II to the Convention; concentrations in mass per mass units*).

.9 Properties of waste or other matter:
- solubility;
- relative density (specific gravity);
- pH.

.10 Method of packaging.

.11 Method of release.

.12 Procedure and site for subsequent tank washing.

.13 Approved dumping site:
- geographical position (latitude and longitude);
- depth of water;
- distance from nearest coast.

.14 Additional information with regard to the factors listed in Annex III of the Convention, in particular on the toxicity of waste or other matter (type of toxicity test, e.g. 96-hr LC_{50}, test species used). In case of chemical waste provide any information available on the biodegradability of the waste.

3 EXAMPLES

3.1 Dredged Materials

Item of format

.1	(Issuing authority)
.2	(15.1.81 - 31.12.81)
.3	(Port of loading)
.4	Dredgings from (source: estuary, harbour, etc.)
.5	Silt and clay, 60% solids content (weight)
.6	50,000 m^3
.7	once per week
.8	levels of contaminants present in solids, e.g., Oil: 200 ppm; Hg: 1 ppm; Cd: 2 ppm; cu: 50 ppm; Pb: 100 ppm; Zn: 150 ppm; Cr: 50 ppm. (concentrations on dry weight basis)
.9	- 60% insoluble - 1.5 g/cm^3 - pH 7
.10	Not applicable
.11	Immediate release from barge through bottom opening doors
.12	Not applicable
.13	(approved dumping site)
.14	monitoring requirements
.15	additional requirements

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* Indicate whether on dry weight or wet weight basis.

3.2 Sewage sludge

Item of format

.1 (Issuing authority)
.2 (15.1.81 - 31.12.81)
.3 (Port of loading)
.4 Primary/digested sewage from (source: town, city)
.5 sludges, 9% (weight) solids content
.6 300,000 t
.7 Three times per week
.8 5% organic solids
4% non organic solids
Levels of components, e.g. Oil: 50 ppm; Cd: 0.1 ppm; Hg: 0.1 ppm; Zn: 100 ppm; Cu: 50 ppm; Cr: 50 ppm; Ni: 10 ppm; Pb: 40 ppm; N: 0.21%; P: 500 ppm
(concentrations on wet weight basis)
.9 - 4% insoluble solids
- 1.01 g/cm^3
- pH 6
.10 Not applicable
.11 Release at 1000 tonnes/hr from bottom of moving vessel (capacity 2000 tonnes)
.12 Not applicable
.13 (approved dumping site)
.14 (additional information)

3.3 Acid residues from Titanium Dioxide Production

Item of format

.1 (Issuing authority)
.2 (15.1.81 - 31.12.81)
.3 (Country of origin, port of loading)
.4 Diluted hydrochloric acids with suspended solids; production of titanium dioxide (TiO_2); raw material: ilmenite (Norwegian)
.5 Liquid; 2% insoluble solids
.6 150,000 t
.7 3 times per week
.8 10% hydrochloric acid;
3% iron sulphate;
level of other metals: V, Cr, Zn, Cu, Cd analysed;
2% suspended solids
.9 - 2% insoluble solids
- 1.1 g/cm^3
- pH 0.5
.10 Not applicable
.11 Discharged at 250 tonnes/hr into the wake of a vessel (1000 tonnes capacity) moving at 8 knots. Position of discharge 5m below surface.
.12 Tank washing at dumping site
.13 (approved dumping site)

3.4 Containers, scrap metal and other bulky wastes (e.g. wreckages) covered by Annex II, section C

Item of format

.1	(Issuing authority)
.2	(1.8.81 - 31.8.81)
.3	Identity in the case of ships or aircraft
.4	Specification of material (e.g. wooden hull, steel hull in the case of ships)
.5	Not applicable
.6	Dimensions
.7	Frequency of dumping (e.g. one dumping only)
.8 - .12	Not applicable
.13	(approved dumping site)
.14	Associated residues of contents of containers of any sort (including in the case of ships or aircraft, cargoes, fuel, etc.); precautions required to prevent pollution by such associated materials; measures taken to ensure wastes will sink and remain in place.

3.5 Radioactive wastes and other radioactive matter

The details given should reflect the results of considerations made in accordance with the IAEA Recommendations for issuing special permits for dumping radioactive materials at sea and for operational control of the dumping of radioactive wastes (INFCIRC/205/Add.1/Rev.1, sections B and C).

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ANNEX 12

REPORT OF THE DISPOSAL OF WASTES OR OTHER MATTER
CARRIED OUT AT SEA IN THE CALENDAR YEAR ...[1/]
(LDC IV/12, annex 6)

1 Name(s) of Country(ies)

2 Year Permit(s) issued (and reference number if appropriate)[2/]

3 Dumping/incineration site(s)

4 Nature and quantity (tonnes) of waste dumped/incinerated

Industrial Wastes
Sewage Sludge
Dredgings
Radioactive waste[3/]

5 Dumping/incineration method

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1/ If a Contracting Party to the London Dumping Convention is also a party to a regional convention and has submitted an annual report on all dumping or incineration operations carried out under a regional convention, that report may be substituted for this report format. The Secretariat of the regional convention shall notify the Organization of the annual reports submitted under the regional convention.

2/ Reference should be made to a permit reference number that might have been used in the PROCEDURE FOR THE NOTIFICATION OF PERMITS ISSUED FOR THE DUMPING OF WASTES AND OTHER MATTER AT SEA.

3/ For radioactive wastes the Beta/gamma , Tritium- and Alpha- Radioactivity should be given in Curie (Ci) separately, together with the origin of waste and conditioning.

ANNEX 13

REPORTING OF MONITORING ACTIVITIES CARRIED OUT IN ACCORDANCE WITH ARTICLE VI(1)(d) OF THE LONDON DUMPING CONVENTION (LDC 10/15, annex 7)

1 Form of report for the acquisition of data on monitoring of dumping sites as adopted by the Fourth Consultative Meeting (LDC IV/12, Annex 7)

1 Monitored Area

- co-ordinates of the dumping area (geographical co-ordinates)
- area map with station locations

2 Data on discharged wastes

3 Technical data on the method of dumping (depth, initial dilution, etc.)

4 Hydrographical data about the area (general direction of current flow etc. data from Annex III of the Convention)

5 Monitoring data

Station locations

Monitored compartment:

water
sediments
living matter

Frequency and duration

Parameters measured in each compartment (with reference to the analysis methods used)

General biological parameters (primary productivity etc.)

6 Laboratories and organizations responsible for analysing, sampling, data storage etc.

7 Information on intercalibration and quality control of results; if so, within what framework (ICES, IAEA etc.)

8 General conclusions resulting from monitoring

9 Contact addresses for further information

10 Any details of publications (title, number, year)

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2 Notification of the status of at-sea disposal activities carried out by Contracting Parties to the London Dumping Convention

	Information Category	Special data required	Reporting frequency and Format
1	Permits on waste disposal at sea issued by Contracting Parties	LDC VI/12, Annex 2 (dumping); LDC IV/12, Annex 8 (incineration)	General permits: annually, by 1 June, for preceding year; Special permits: Immediate notification to the Secretariat
2	Wastes and other matter actually dumped or incinerated at sea	LDC IV/12, Annex 6	Annually by 1 June, for preceding year
3	Summary Assessment Reports	.1 Outline of assessment procedures carried out in accordance with sea guidelines for the Implementation and Uniform Interpretation of Annex III (resolution LDC.17 (8))	Periodic, depending on level and nature of dumping activities, and past reporting
		.2 Special provisions of permits, including monitoring requirements by activity or site	No prescribed format
		.3 Major findings and conclusions from assessment and monitoring programmes required in accordance with Article VI(1)(d) of the Convention	No prescribed format

Information Category		Special data required	Reporting frequency and Format
4	Annotated bibliography of detailed dumpsite assessment reports, monitoring results, and related information	.1 citations .2 brief summaries of contents .3 availability and source of documentation	To be submitted to the Secretariat for distribution to all Contracting Parties in accordance with Article XIV (3) (d) of the Convention

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ANNEX 14

APPENDIX TO THE CONVENTION
(Convention on the Prevention on the Prevention of
Marine Pollution by Dumping of Wastes and Other Matter)

ARTICLE 1

1 An Arbitral Tribunal (hereinafter referred to as the "Tribunal") shall be established upon the request of a Contracting Party addressed to another Contracting Party in application of Article XI of the Convention. The request for arbitration shall consist of a statement of the case together with any supporting documents.

2 The requesting Party shall inform the Secretary-General of the Organization of:

(i) its request for arbitration;
(ii) the provisions of the Convention the interpretation or application of which is, in its opinion, the subject of disagreement.

3 The Secretary-General shall transmit this information to all Contracting States.

ARTICLE 2

1 The Tribunal shall consist of a single arbitrator if so agreed between the parties to the dispute within 30 days from the date of receipt of the request for arbitration.

2 In the case of the death, disability or default of the arbitrator, the parties to a dispute may agree upon a replacement within 30 days of such death, disability or default.

ARTICLE 3

1 Where the parties to a dispute do not agree upon a Tribunal in accordance with Article 2 of this Appendix, the Tribunal shall consist of three members:

(i) one arbitrator nominated by each party to the dispute; and
(ii) a third arbitrator who shall be nominated by agreement between the two first named and who shall act as its Chairman.

2 If the Chairman of a Tribunal is not nominated within 30 days of nomination of the second arbitrator, the parties to a dispute shall, upon the request of one party, submit to the Secretary-General of the Organization within a further period of 30 days an agreed list of qualified persons. The Secretary-General shall select the Chairman for such list as soon as possible. He shall not select a Chairman who is or has been a national of one party to the dispute except with the consent of the other party to the dispute.

3 If one party to a dispute fails to nominate an arbitrator as provided in sub-paragraph 1(i) of this Article within 60 days from the date of receipt of the request for arbitration, the other party may request the submission to the Secretary-General of the Organization within a period of 30 days of an agreed list of qualified persons. The Secretary-General shall select the Chairman of the Tribunal from such list as soon as possible. The Chairman shall then request the party which has not nominated an artibrator to do so. If this party does not nominate an arbitrator within 15 days of such request, the Secretary-General shall, upon request of the Chairman, nominate the arbitrator from the agreed list of qualified persons.

4 In the case of the death, disability or default of an arbitrator, the party to the dispute who nominated him shall nominate a replacement within 30 days of such death, disability or default. If the party does not nominate a replacement, the arbitration shall proceed with the remaining arbitrators. In the case of the death, disability or default of the Chairman, a replacement shall be nominated in accordance with the provision of paragraphs 1(ii) and 2 of this Article within 90 days of such death, disability or default.

5 A list of arbitrators shall be maintained by the Secretary-General of the Organization and composed of qualified persons nominated by the Contracting Parties. Each Contracting Party may designate for inclusion in the list four persons who shall not necessarily be its nationals. If the parties to the dispute have failed within the specified time limits to submit to the Secretary-General an agreed list of qualified persons as provided for in paragraphs 2, 3 and 4 of this Article, the Secretary-General shall select from the list maintained by him the arbitrator or arbitrators not yet nominated.

ARTICLE 4

The Tribunal may hear and determine counter-claims arising directly out of the subject matter of the dispute.

ARTICLE 5

Each party to the dipute shall be responsible for the costs entailed by the preparation of its own case. The remuneration of the members of the Tribunal and of all general expenses incurred by the Artitration shall be borne equally by the parties to the dispute. The Tribunal shall keep a record of all its expenses and shall furnish a final statement thereof to the parties.

ARTICLE 6

Any Contracting Party which has an interest of a legal nature which may be affected by the decision in the case may, after giving written notice to the parties to the dispute which have originally initiated the procedure, intervene in the arbitration procedure with the consent of the Tribunal and at its own expense. Any such intervenor shall have the right to present evidence, briefs and oral argument on the matters giving rise to its intervention, in accordance with procedures established pursuant to Article 7 of this Appendix, but shall have no rights with respect to the composition of the Tribunal.

ARTICLE 7

A Tribunal established under the provisions of this Appendix shall decide its own rules of procedure.

ARTICLE 8

1 Unless a Tribunal consists of a single arbitrator, decisions of the Tribunal as to its procedure, its place of meeting, and any question related to the dispute laid before it, shall be taken by majority vote of its members. However, the absence or abstention of any member of the Tribunal who was nominated by a party to the dispute shall not constitute an impediment to the Tribunal reaching a decision. In case of equal voting, the vote of the Chairman shall be decisive.

2 The parties to the dispute shall facilitate the work of the Tribunal and in particular shall, in accordance with their legislation and using all means at their disposal:

(i) provide the Tribunal with all necessary documents and information;
(ii) enable the Tribunal to enter their territory, to hear witnesses or experts, and to visit the scene.

3 The failure of a party to the dipute to comply with the provisions of paragraph 2 of this Article shall not preclude the Tribunal from reaching a decision and rendering an award.

ARTICLE 9

1 The Tribunal shall render its award within five months from the time it is established unless it finds it necessary to extend that time limit for a period not to exceed five months. The award of the Tribunal shall be accompanied by a statement of reasons for the decision. It shall be final and without appeal and shall be communicated to the Secretary-General of the Organization who shall inform the Contracting Parties. The parties to the dispute shall immediately comply with the award.

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ANNEX 15

ASSEMBLY RESOLUTION A.582(14)

GUIDELINES FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING HAZARDOUS LIQUID WASTES IN BULK FOR THE PURPOSE OF DUMPING AT SEA
(MSC 50/27, annex 16)

THE ASSEMBLY,

RECALLING article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

NOTING the increase in the number of ships engaged in the carriage of hazardous liquid wastes in bulk for the purpose of dumping at sea,

RECOGNIZING the need for the development of special guidelines for the construction and equipment of such ships to supplement the requirements of the International Convention for the Safety of Life at Sea, 1974,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fiftieth session:

1 ADOPTS the Guidelines for the Construction and Equipment of Ships Carrying Hazardous Liquid Wastes in Bulk for the Purpose of Dumping at Sea, which are set out in the Annex to this present resolution;

2 RECOMMENDS that all Governments concerned take appropriate steps to give effect to the Guidelines as soon as possible;

3 REQUESTS the Maritime Safety Committee to keep the Guidelines under review in the light of experience gained and to report as necessary to the Assembly.

ANNEX

GUIDELINES FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING HAZARDOUS LIQUID WASTES IN BULK FOR THE PURPOSE OF DUMPING AT SEA

LIST OF CONTENTS

CHAPTER 1 - GENERAL

1.1 Application

1.1.1 The Guidelines apply to ships regardless of size the keels of which are laid or which are at a similar stage of construction on or after.

1.1.2 For the purpose of 1.1.1 "at a similar stage of construction" means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tons or one per cent of the estimated mass of all structural material, whichever is less.

1.1.3 The Guidelines also apply to ships used for dumping hazardous liquid wastes for the first time after May 1986 or whose conversion commences after that date, where conversion is necessary prior to such usage.

1.1.4 The Guidelines should be applied to ships not covered by 1.1.1 or 1.1.3, engaged in the dumping of hazardous liquid wastes, as far as reasonable and practicable. The Administration may allow alternative construction, materials or fittings to be used to enable dumping operations to be carried out safely.

1.1.5 Ships regardless of size should comply with the requirements of Chapters II-1 and II-2 of the 1974 SOLAS Convention and with Chapter II of the 1966 Load Line Convention and any amendments to these chapters of these two conventions which are in force at the time of their building or conversion.

1.1.6 Depending on the nature or the amount of the waste, or the length of contract involved, or the length of voyage involved, the Administration may specify the extent to which a ship should comply with the requirements of the Bulk Chemical Code (resolution A.212(VII)) or the IBC Code (resolution MSC.4(48)).

1.2 Scope

1.2.1 The Guidelines cover hazardous liquid wastes carried in bulk for the purpose of dumping at sea.

1.2.2 The Guidelines cover solid hazardous substances and mixtures carried for the purpose of dumping at sea, provided such substances are handled as liquids, e.g., suspended in liquids or discharged by flushing the tanks with another liquid, except where such solids originate from dredging and sewage sludge.

1.2.3 The Administration should prescribe the conditions of carriage having regard to the risk to the ship, its crew and the environment due to the inherent hazards of the waste carried for the purpose of dumping. Such conditions may be specified for one type of waste or generically.

1.3 Hazards

Hazards of products covered by the Guidelines include:

1.3.1 Fire hazard defined by flashpoint, boiling point, flammability limits and auto-ignition temperature of the waste;

1.3.2 Health hazard defined by:

.1 irritant or toxic effect on the skin or on the mucous membranes of the eyes, nose, throat and lungs in the gas or vapour state combined with vapour pressure; or

.2 irritational effects on the skin in the liquid state; or

.3 toxic effect, taking into account values of:

LD 50 Oral: a dose which is lethal to 50 per cent of the test subjects when administered orally;

LD 50 Skin: a dose which is lethal to 50 per cent of the test subjects when administered to the skin;

LC 50 : the concentration which is lethal by inhalation to 50 per cent of the test subjects.

1.3.3 Air pollution hazard defined by:

.1 Emergency Exposure Limit (EEL) or LC 50;
.2 Vapour pressure;
.3 Solubility in water;
.4 Relative density of liquid;
.5 Vapour density.

1.3.4 Reactivity hazard defined by reactivity with:

.1 Other wastes; or

.2 The waste itself (including polymerization).

1.4 Definitions

The following definitions apply unless expressly provided otherwise.

1.4.1 Accommodation spaces are public spaces and those spaces used for corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, barber shops, pantries containing no cooking appliances and similar spaces. Public spaces are those portions of the accommodation spaces which are used for halls, dining rooms, lounges and similar permanently enclosed spaces.

1.4.2 Administration means the Government of the State whose flag the ship is entitled to fly.

1.4.3 Cargo area is that part of the ship that contains cargo tanks, cargo pump rooms including pump rooms, cofferdams, ballast or void spaces adjacent to cargo tanks and deck areas over the full beam and length of the ship over the above-mentioned spaces. Where independent tanks are installed in hold spaces, cofferdams, ballast or void spaces at the after end of the aftermost hold space or at the forward end of the forwardmost hold space are excluded from the cargo area.

1.4.4 Cargo pump room is a space containing pumps and their accessories for the handling of products covered by the Guidelines.

1.4.5 Cargo tank is the envelope designed to contain the cargo.

1.4.6 Cofferdam is the isolating space between two adjacent steel bulkheads or decks. This space may be a void space or a ballast space.

1.4.7 Control stations are those spaces in which ship's radio or main navigating equipment or the emergency source of power is located or where the fire recording or fire control equipment is centralized. This does not include special fire control equipment which can be most practically located in the cargo area.

1.4.8 Flammability limits are the conditions defining the state of fuel-oxidant mixture at which application of an adequately strong external ignition source is only just capable of producing flammability in a given test apparatus.

1.4.9 Flashpoint is the temperature in degrees Celsius at which a product will give off enough flammable vapour to be ignited. Values stated in the Guidelines are "closed cup test" determined by an approved flashpoint apparatus.

1.4.10 Machinery spaces of Category A are those spaces and trunks to such spaces which contain:

.1 internal combustion machinery used for main propulsion; or

.2 internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kW; or

.3 any oil-fired boiler or oil fuel unit.

1.4.11 Machinery spaces are all machinery spaces of Category A and all other spaces containing propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air conditioning machinery, and similar spaces, and trunks to such spaces.

1.4.12 Pump room is a space, located in the cargo area, containing pumps and their accessories for the handling of ballast and oil fuel.

1.4.13 Service spaces are those spaces used for galleys, pantries containing cooking appliances, lockers, mail and specie rooms, store rooms, workshops and other than those forming part of the machinery spaces and similar spaces and trunks to such spaces.

1.4.14 1974 SOLAS CONVENTION means the International Convention for the Safety of Life at Sea, 1974 as amended.

1.4.15 Void space is an enclosed space in the cargo area external to a cargo tank other than a hold space, ballast space, oil fuel tank, cargo pump room, pump room, or any space in normal use by personnel.

1.4.16 Wastes are those substances for which the competent authority has issued a permit for dumping at sea.

1.5 Equivalents

Where the Guidelines requires that a particular fitting, material, appliance, apparatus, item of equipment or type thereof should be fitted or carried in a ship, or that any particular provision should be made, or any procedure or arrangement should be complied with, the Administration may allow any other fitting, material, appliance, apparatus, item of equipment or type thereof to be fitted or carried, or any other provision, procedure or arrangement to be made in that ship, if it is satisfied by trial thereof or otherwise that such fitting, material, appliance, apparatus, item of equipment or type thereof or that any particular provision, procedure or arrangement is at least as effective as that required by the Guidelines. However, the Administration should not allow operational methods or procedures to be made an alternative to a particular fitting, material, appliance, apparatus, item of equipment, or type thereof, which are prescribed by the Guidelines, unless such substitution is specifically allowed by the Guidelines.

1.6 Emergency dumping

In cases where a hazardous waste is to be dumped at sea in accordance with a special permit issued under the emergency provisions of, for example, the London Dumping Convention, the Administration may allow relaxations of the Guidelines taking into account the nature of the emergency and the risk to the crew and the ship.

1.7 Survey and certification

1.7.1 Every ship to which these Guidelines apply should be subject to the surveys specified for tankers in the 1974 SOLAS Convention as amended by the 1978 SOLAS Protocol. Such surveys should be extended to provide for and ensure compliance with the Guidelines.

1.7.2 Following a satisfactory initial survey or inspection of a ship, the Administration or its duly authorized organization should issue an appropriate certificate suitably endorsed to indicate compliance with the provisions of the Guidelines.

1.7.3 The duration and validity of the Certificate should be governed by the respective provisions for cargo ships in the 1974 SOLAS Convention as amended by the 1978 SOLAS Protocol.

1.7.4 Where a certificate is issued for a ship referred to in paragraph 1.1.4, it should be endorsed to indicate which provisions of the Guidelines have not been fully complied with.

CHAPTER 2 - STABILITY AND FREEBOARD

2.1 Stability

2.1.1 During loading, when underway and when engaged in dumping, the ship's stability should be to standards acceptable to the Administration.

2.1.2 Where sequential discharging of cargo tanks and/or ballasting is necessary to meet the stability standards set by the Administration it should be shown to the satisfaction of the Administration that such a sequence is practicable taking into account the necessity of maintaining full directional control, preventing structural damage and ensuring the safety of the crew.

2.2 Loading Manual

The master of the ship should be supplied with an approved Loading and Stability Information booklet. This booklet should contain details of typical service conditions, loading, dumping and ballasting operations and provisions for evaluating other conditions of loading. In addition, the booklet should contain sufficient information to enable the master to load and operate the ship in a safe and seaworthy manner. Where sequential discharging and/or ballasting is required during dumping in order to meet the standards set by the Administration the sequence should be described in the booklet.

CHAPTER 3 - SHIP ARRANGEMENTS

3.1 Cargo segregation

3.1.1 A cargo subject to the provisions of the Guidelines should be segregated from machinery spaces, oil fuel tanks, accommodation and service spaces and from drinking water and stores for human consumption by means of a cofferdam, void spaces, cargo pump-room, pump-room empty tank, or other similar space, except where otherwise excluded by the Guidelines.

3.1.2 Cargoes which react in a hazardous manner with other cargoes should:

.1 be segregated from such other cargoes by means of a cofferdam, void space, cargo pump-room, pump-room, empty tank, or a mutually compatible cargo;

.2 have separate pumping and piping systems which should not pass through other cargo tanks containing such cargoes, unless encased in a tunnel; and

.3 have separate tank vent systems.

3.1.3 Cargo piping should not pass through any accommodation or machinery space other than cargo pump-rooms or pump-rooms.

3.1.4 A cargo subject to the provisions of the Guidelines should not be carried in either the fore or aft peak tanks.

3.2 Accommodation, service and machinery spaces and control stations

3.2.1 No accommodation or service spaces or control stations should be located within the cargo area.

3.2.2 In order to guard against the danger of hazardous vapours, due consideration should be given to the location of air intakes and openings into accommodation, service and machinery spaces and control stations in relation to cargo piping and cargo vent systems. The distance between openings into the accommodation or machinery spaces and outlets from cargo vent systems and cargo pump-rooms should be to the satisfaction of the Administration.

3.3 Cargo pump-rooms

3.3.1 Cargo pump-rooms should not contain machinery, other than cargo pumps and bilge/ballast pumps serving spaces within the cargo area, when the flashpoint of the waste is 60°C or less or whenever the waste may generate flammable gases when in contact with metals.

3.3.2 Cargo pump-rooms should be so arranged as to ensure:

.1 unrestricted passage at all times from any ladder-platform and from the floor; and

.2 unrestricted access to all valves necessary for cargo handling for a person wearing the required personnel protective equipment.

3.3.3 Permanent arrangements should be made for hoisting an unconscious person with a rescue line while avoiding any projecting obstacles.

3.3.4 Guard railings should be installed on all ladders and platforms.

3.3.5 Normal access ladders should not be fitted vertically and should incorporate platforms at suitable intervals.

3.3.6 Means should be provided to deal with drainage and any possible leakage from cargo pumps and valves in cargo pump-rooms. The bilge system serving the cargo pump-room should be operable from outside the cargo pump-room. Provision should be made for transferring contaminated water to cargo tanks or ashore.

3.3.7 Pump discharge pressure gauges should be provided outside the cargo pump-room.

3.3.8 Where machinery is driven by shafting passing through a bulkhead or deck, gastight seals with efficient lubrication or other means of ensuring the permanence of the gas seal should be fitted in way of the bulkhead or deck.

3.4 Access to spaces in the cargo area

3.4.1 Arrangements for void spaces, cargo tanks and other spaces in the cargo tank area should be such as to ensure adequate access for complete inspection.

3.4.2 Access to the cargo tanks should be direct from the open deck.

3.4.3 For access through horizontal openings, hatches or manholes, the dimensions should be sufficient to allow a person wearing a breathing apparatus to ascend or descend any ladder without obstruction and also to provide a clear opening to facilitate the hoisting of an injured person from the bottom of the space. The minimum clear opening should be not less than 600 mm x 600 mm.

3.4.4 For access through vertical openings or manholes providing passage through the length and breadth of the space, the minimum clear opening should be not less than 600 mm x 800 mm at a height of not more than 600 mm from the bottom shell plating unless gratings or other footholds are provided.

3.4.5 Smaller dimensions may be approved by the Administration in special circumstances.

3.5 Bilge and ballast arrangements

3.5.1 Pumps, ballast lines, vent lines and other similar equipment serving permanent ballast tanks should be independent of similar equipment serving cargo tanks and of cargo tanks themselves. Discharge arrangements for permanent ballast tanks sited immediately adjacent to cargo tanks should be outside machinery spaces and accommodation spaces. Filling arrangements may be in the machinery spaces provided that such arrangements ensure filling from tank deck level and nonreturn valves are fitted.

3.5.2 Filling of ballast in cargo tanks may be arranged from deck level by pumps serving permanent ballast tanks, provided that the filling line has no permanent connection to cargo tanks or piping and that nonreturn valves are fitted.

3.5.3 Bilge pumping arrangements for cargo pump-rooms, pump-rooms, void spaces, cargo slop tanks, double bottom tanks and similar spaces should be situated entirely within the cargo area except for double bottom tanks and ballast tanks where such spaces are separated from tanks containing cargo or residues of cargo by a double bulkhead.

3.6 Pump and pipeline identification

Provisions should be made for the distinctive marking of pumps, valves and pipelines to identify the service and tanks which they serve.

3.7 Stern dumping arrangements

3.7.1 Subject to the approval of the Administration, cargo piping may be fitted to permit stern dumping. Portable arrangements should not be permitted.

3.7.2 Stern dumping lines should not be used for the loading of waste substances.

3.7.3 In addition to 5.1, the following provisions apply:

.1 The piping outside the cargo area should be fitted inboard on the open deck. Such piping should be clearly identified and fitted with a shutoff valve at its connection to the cargo piping system within the cargo area. At this location, it should also be capable of being separated by means of a removable spool-piece and blank flanges when not in use when waste is carried with a flashpoint less than 60°C.

.2 The piping should be full penetration butt welded, and flange connections in the piping should only be permitted within the cargo area and at the connection to the outboard end of the dumpline except in exceptional cases specifically approved by the Administration.

.3 Spray shields should be provided at the connections specified in .2 as well as collecting trays of sufficient capacity with means for the disposal of drainage.

.4 The piping should be self-draining to the cargo area or overboard and preferably into a cargo tank.

.5 Arrangements should be made to allow such piping to be washed after use and maintained gas-safe when not in use. The relevant connections to the piping should be provided with a shutoff valve and blank flange.

3.7.4 Entrances, air inlets and openings to accommodation, service and machinery spaces and control stations should not face aft. Port lights facing aft should be of the fixed (non-opening) type. In addition, during the use of stern dumping arrangements, all doors, ports and other openings on the superstructure or deckhouse side where the dumpline is located should be kept closed.

CHAPTER 4 - CARGO CONTAINMENT

4.1 Cargo tanks

Cargo tanks should be constructed taking into account the pressures due to the cargo density and to sloshing during dumping operations. The cargo density should be assumed to be at least 1400 kg/m^3. The ship's shell plating may form the tank boundary.

CHAPTER 5 - CARGO TRANSFER

5.1 Piping arrangements

5.1.1 The design and construction of cargo piping systems should comply with the standards of the Administration, taking into account the provisions of this chapter. The materials should be sufficiently resistant to the waste.

5.1.2 All piping system components should have a pressure rating not less than the maximum pressure to which the system may be subjected. Piping which is not protected against overpressure by a pressure relief valve, or which can be isolated from its relief valve should be designed to withstand the greatest pressure the piping would experience in service, taking into consideration:

.1 Cargo vapour pressure at 45°C;

.2 pressure rating of the cargo tank;

.3 maximum discharge pressure of the associated pump and its relief valve setting; and

.4 maximum hydrostatic pressure, that could be generated in the piping, during normal operations.

5.1.3 .1 Except for the use of hoses for connecting the ship's piping to the shore piping, cargo should be handled only by means of fixed piping systems.

.2 Cargo piping should be located within the cargo area, except as permitted by 3.7.

5.1.4 Runs of cargo piping through bulkheads should be so arranged as to preclude excessive stresses at the bulkhead and should not utilize flanges bolted through the bulkhead.

5.2 Cargo transfer control systems

5.2.1 For the purpose of adequately controlling the cargo, cargo transfer systems should be provided with:

.1 one stop valve capable of being manually operated on each tank filling and discharge line, located near the tank penetration; if individual deepwell pumps are used to discharge the contents of each cargo tank a stop valve at the tank is not required on the discharge line;

.2 one stop valve at each cargo hose connection;

.3 remote shutdown devices for all cargo pumps and similar equipment.

5.2.2 The controls necessary during transfer and/or transport of cargoes covered by the Guidelines other than in cargo pump-rooms which have been dealt with elsewhere in the Guidelines should not be located below the weather deck.

5.3 Ship's cargo hoses

5.3.1 Hoses used for cargo transfer should be compatible with the cargo and suitable for the cargo temperature.

5.3.2 Hoses subject to tank pressure or the discharge pressure of pumps should be designed for a bursting pressure not less than 5 times the maximum pressure the hose will be subjected to during cargo transfer.

5.3.3 Each cargo hose should have been hydrostatically tested at ambient temperature to a pressure not less than 1.5 times its specified maximum working pressure and not more than two-fifths of its bursting pressure. The hose should be stencilled or otherwise marked with its specified maximum working pressure and, if used in other than ambient temperatures, with its maximum and/or minimum service temperature. The specified maximum working pressure should not be less than 10 bar gauge.

5.4 Spray shields and drip trays

Flanges of the cargo piping system as well as flanges of the loading and discharge manifold connections should be provided with shields which may be portable to guard against the danger of the cargo being sprayed; in addition, drip trays should also be provided to guard against leakage onto the deck below the manifold.

CHAPTER 6 - MATERIALS OF CONSTRUCTION

6.1 General

6.1.1 Materials used for tank construction, together with associated piping, pumps, valves, vents and their jointing materials should be suitable at the carriage temperature and pressure for the cargo to be carried to the satisfaction of the Administration. Coated, lined or unprotected steel is assumed to be the normal material of construction, depending on the nature of the cargo.

6.1.2 Where applicable the following should be taken into account in selecting the material of construction:

.1 corrosive effect of the cargo taking into account neutralizing additives;

.2 possibility of hazardous reactions between the cargo and the material of construction; and

.3 suitability of linings and coatings.

CHAPTER 7 - CARGO TEMPERATURE CONTROL

Hazardous liquid wastes do not normally require temperature control. Where this is found necessary the provisions of chapter 7 of the International Bulk Chemical Code should be used as guidance and the relevant provisions of chapter 10 of that Code taken into account in so far as they concern heated flammable cargoes.

CHAPTER 8 - TANK VENT SYSTEMS

8.1 General

8.1.1 All cargo tanks should be provided with a venting system appropriate to the cargo being carried.

8.1.2 Where an open venting system is provided for liquid wastes with a flashpoint exceeding 60°C, the vent outlets should be arranged to prevent the entrance of water into the cargo tanks. In no case should shutoff valves or isolating arrangements be placed between the cargo tank and the vent outlet.

8.1.3 A controlled venting system should be provided for flammable liquid wastes with a flashpoint not exceeding 60°C; the arrangements should be in accordance with regulation 59 of chapter II-2 of the 1974 SOLAS Convention as amended.

CHAPTER 9 - ELECTRICAL INSTALLATIONS

9.1 General

9.1.1 The provisions of this chapter are applicable to ships carrying liquid wastes and solid wastes handled as liquids, which are inherently, or due to their reaction with other substances, flammable and corrosive to electrical equipment and which may develop flammable gases when in contact with metals. These provisions should be applied in conjunction with the applicable requirements of part D, chapter II-1 of the amended 1974 SOLAS Convention.

9.1.2 Electrical apparatus or part thereof which may be in direct contact with the liquid wastes carried should be suitably resistant to reaction with the wastes.

9.1.3 Electrical equipment and wiring should not be installed in the hazardous locations referred to in 9.2 unless essential for operational purposes when the exceptions listed in 9.2.2 may be permitted.

9.1.4 Where electrical equipment is installed in the hazardous locations as permitted in this chapter it should be to the satisfaction of the Administration and certified by the relevant authorities, recognized by the Administration, for operation in flammable atmospheres. Such certification and operation should take into account that wastes may be corrosive to metals and that the flammable atmosphere may be a hydrogen/air mixture.

9.1.5 The Administration should take appropriate steps to ensure uniformity in the implementation and application of the provisions of this chapter in respect of electrical installations.*

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* Reference is made to the recommendations published by the International Electrotechnical Commission and in particular to publication 92-502.

9.1.6 Where liquid wastes are to be carried which have a flashpoint of 60°C or less, the International Bulk Chemical Code paragraphs 10.1, 10.2.3 and 10.3 should be applied. However, where the flashpoint of the waste is due to a flammable component dissolved in water and the waste does not sustain burning the Administration may allow relaxations from such provisions.

9.2 Hazardous locations and types of equipment and wiring

9.2.1 The restrictions in this section do not preclude the use of intrinsically safe systems and circuits in all hazardous locations including cargo piping. It is particularly recommended that intrinsically safe systems and circuits are used for measurement, monitoring, control and communication purposes.

9.2.2 All enclosed spaces within the cargo area are to be considered as hazardous spaces. In addition to intrinsically safe systems and circuits the only hazardous locations where electrical installations are permitted are:

.1 Cargo tanks and cargo piping. No additional electrical equipment is permitted.

.2 Void spaces adjacent to, above or below integral tanks:

.2.1 Through runs of cables. Such cables should be installed in heavy gauge steel pipes with gastight joints. Expansion bends should not be fitted in such spaces.

.2.2 Electrical depth sounding or log devices and impressed current cathodic protection system anodes or electrodes. These devices should be housed in gastight enclosures; associated cables should be protected as referred to in 9.2.2.2.1.

.3 Hold spaces containing independent cargo tanks:

.3.1 Through runs of cables without any additional protection.

.3.2 Lighting fittings with pressurized enclosure or of the flameproof type. The lighting system should be divided between at least two branch circuits. All switches and protective devices should interrupt all poles or phases and should be located in a non-hazardous location.

.3.3 Electrical depth sounding or log devices and impressed current cathodic protection system anodes or electrodes. These devices should be housed in gastight enclosures.

.4 Cargo pump-rooms:

.4.1 Lighting fittings with pressurized enclosures or of the flameproof type. The lighting system should be divided between at least two branch circuits. All switches and all protective devices should interrupt all poles or phases and should be located in a non-hazardous location.

.4.2 Electrical motors for driving cargo pumps and any associated auxiliary pumps should be separated from these spaces by a gastight bulkhead or deck. Flexible couplings or other means of maintaining alignment should be fitted to the shafts between the driven equipment and its motors and, in addition, glands should be provided to the satisfaction of the Administration where the shafts pass through the bulkhead or deck. Such electrical motors should be located in a compartment having positive pressure ventilation.

.4.3 Flameproof general alarm audible indicator.

.5 Zones on open deck within 3 m of any cargo tank outlet and ventilation opening to cargo pump-rooms:

.5.1 Equipment of a certified safe type, adequate for open deck use.

.5.2 Through runs of cables.

.6 Enclosed or semi-enclosed spaces in which pipes containing cargoes are located; enclosed or semi-enclosed spaces immediately above cargo tanks (e.g. between decks) or having bulkheads above and in line with cargo tank bulkheads; enclosed or semi-enclosed spaces immediately above cargo pump-rooms or above vertical cofferdams adjoining cargo tanks unless separated by a gastight deck and suitably ventilated; and compartments for cargo hoses:

.6.1 Lighting fittings of a certified safe type. The lighting system should be divided between at least two branch circuits. All switches and protective devices should interrupt all poles or phases and should be located in a non-hazardous location.

.6.2 Through runs of cables.

.7 Enclosed or semi-enclosed spaces having a direct opening into any hazardous location referred to above should have electrical installations complying with the requirements for the space or zone into which the opening leads.

9.3 Bonding

Independent cargo tanks should be electrically bonded to the hull. All gasketed cargo pipe joints and hose connections should be electrically bonded.

CHAPTER 10 - INSTRUMENTATION

10.1 Gauging

10.1.1 Open gauging may be allowed with all cargoes. Openings for gauging should be provided with permanently attached gastight covers capable of being properly secured.

10.1.2 When flammable liquids are carried, openings for gauging should be provided with self-closing covers.

10.2 Vapour detection

10.2.1 Ships carrying flammable or toxic waste should be equipped with at least two portable instruments designed and calibrated for testing for the specific vapours in question. If such instruments are not capable of testing for both toxic concentrations and flammable concentrations then two separate sets of instruments should be provided.

CHAPTER 11 - PERSONNEL PROTECTION

11.1 Protective equipment

11.1.1 For the protection of crew members who are engaged in loading and discharging operations, the ship should have on board at least four sets of suitable protective equipment consisting of large aprons, special gloves with long sleeves, suitable footwear, coveralls of chemical-resistant material, and tight-fitting goggles or face shields. The protective clothing and equipment should cover all skin so that no part of the body is unprotected.

11.1.2 Work clothes and protective equipment should be kept in easily accessible places and in special lockers. Such equipment should not be kept within accommodation spaces with the exception of new, unused equipment and equipment which has not been used since undergoing a thorough cleaning process. The Administration may, however, approve storage rooms for such equipment within accommodation spaces if adequately segregated from living spaces such as cabins, passageways, dining rooms, bathrooms, etc.

11.1.3 Protective equipment should be used in any operation which may entail danger to personnel.

11.2 Safety equipment

11.2.1 Medical first-aid equipment should be kept on board including oxygen resuscitation equipment and antidotes for wastes carried.

11.2.2 Suitably marked decontamination showers and an eyewash should be available on deck in convenient locations. The showers and eyewash should be operable in all ambient conditions. Where supplementary seawater decontamination arrangements are provided, due consideration should be given to the relative positions of sea suctions and cargo pump overboard discharges.

11.2.3 A stretcher which is suitable for hoisting an injured person up from spaces such as the cargo pump-room should be placed in a readily accessible location.

CHAPTER 12 - OPERATIONAL REQUIREMENTS

12.1 Tank filling

12.1.1 Tanks carrying liquids at ambient temperatures should be so loaded as to avoid the tank becoming liquid-full during the voyage, having due regard to the highest temperature which the cargo may reach.

12.2 Cargo information

12.2.1 A copy of these Guidelines or national regulations incorporating their provisions should be on board every ship covered by these Guidelines.

12.2.2 Information should be on board and available to all concerned, giving the necessary data for the safe carriage of the cargo. Such information should include a cargo stowage plan to be kept in an accessible place, indicating all cargo on board including each type of waste:

.1 an adequate description of the physical and chemical properties necessary for the safe containment of the cargo;

.2 action to be taken in the event of spills or leaks;

.3 counter-measures against accidental personal contact;

.4 fire-fighting procedures and fire-fighting media; and

.5 procedures for cargo transfer, tank cleaning, gas-freeing and ballasting.

12.2.3 If sufficient information necessary for the safe transportation of the waste is not available, the waste should be refused.

12.3 Personnel training

12.3.1 All personnel should be adequately trained in the use of protective equipment and have basic training in the procedures appropriate to their duties, necessary under emergency conditions.

12.3.2 Personnel involved in cargo operations should be adequately trained in handling procedures.

12.3.3 Officers should be trained in emergency procedures to deal with conditions of leakage, spillage or fire involving the cargo and a sufficient number of them should be instructed and trained in essential first aid for cargoes carried.

12.4 Opening of and entry into cargo tanks

12.4.1 During handling and carriage of cargoes producing flammable vapours, or when ballasting after the discharge of such cargo, or when loading cargo, cargo tank lids should always be kept closed and ullage and tank washing access covers should be open only when necessary.

12.4.2 Personnel should not enter cargo tanks, void spaces around such tanks, cargo handling spaces or other enclosed spaces unless:

.1 the compartment is free of toxic vapours and not deficient in oxygen; or

.2 personnel wear breathing apparatus and other necessary protective equipment and the entire operation is under the close supervision of a responsible officer.

12.4.3 Personnel should not enter such spaces when the only hazard is of a purely flammable nature, except under the close supervision of a responsible officer.

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ANNEX 16

REQUIREMENTS FOR SHIPS ENGAGED IN THE INCINERATION AT SEA OF LIQUID CHEMICAL WASTE

(1983 Amendments to SOLAS 1974, International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), Chapter 19)

19.1 General

19.1.1 Chapters 1 to 16 apply to incinerator ships, as relevant, and as supplemented or modified by the provisions of this chapter.

19.1.2 Information on the composition and the hazards of the waste to be incinerated should be made available to the Administration or port Administration, or both, as appropriate, which may prohibit carriage of those wastes deemed to be too hazardous to be carried in bulk.*

19.1.3 The following additional definitions apply:

.1 Incinerator space is a gas-tight space containing solely the incinerator and its associated auxiliaries.

.2 Incinerator blower space is a space containing the blowers which supply combustion air to the incinerator burners.

.3 Dumping Convention means the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter at Sea, 1972.

.4 Cargo area is that part of the ship defined by 1.3.5, excluding incinerators and chemical waste piping leading to the incinerators.

19.1.4 During the periodical and intermediate surveys required under 1.5.1.2 and .3, all cargo tanks and the cargo piping system should be inspected for corrosion and the remaining thickness of material should be determined. Where severely corrosive wastes have been carried, inspections of cargo tanks and the cargo piping system for corrosion should be held annually and the remaining thickness of materials determined during those inspections.

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* The environmental aspects of incineration and dumping of wastes are regulated by the London Dumping Convention. In general, for incineration of waste, a permit from the appropriate authority of the Contracting Party to the Convention, where the loading port is situated, is required. Where the loading port is situated in a State not being a Contracting Party to the Convention, the Administration should issue a permit.

19.2 Ship survival capability and location of cargo tanks

19.2.1 Ships subject to this chapter should comply with type 2 ship standards and with the requirements for location of cargo tanks in type 2 ships.

19.2.2 Waste mixtures containing substances which would require a typeÑ1 ship standard may be carried in type 2 ships if solely for the purpose of incineration.

19.3 Ship arrangements

19.3.1 Liquid chemical wastes should not be stowed adjacent to oil fuel tanks except those tanks containing oil fuel to be used exclusively for incineration.

19.3.2 Tanks and pumps which may contain liquids other than those described in 19.3.3 and which are to be used for the incineration process or for washing cargo pipes and cargo tanks may be located adjacent to cargo tanks and should be located within the cargo area. The provisions of 3.1 should apply to such tanks and equipment to the same extent as they apply to cargo tanks.

19.3.3 Where necessary, oil fuel tanks and fuel pumps directly feeding the incinerator burners during the process of pre-heating or supporting incineration may be located outside the cargo area provided the oil fuel used has a flashpoint above 60°C (closed cup test). (See also 19.5.3.)

19.3.4 Liquids which have been used for cleaning cargo pipes and cargo tanks as well as for pumproom drainage should be stored in a slop tank in the cargo area, for disposal in conformity with the technical guidelines annexed to the Dumping Convention. A cargo tank may be used as a slop tank. Pumps used for handling contaminated cleaning fluids should be located in the cargo area.

19.3.5 Where necessary, compliance with 3.2.1 need not be required in so far as accommodation spaces, service spaces, control stations and machinery spaces other than those of category A may be permitted forward of the cargo area, subject to an equivalent standard of safety and appropriate fire-extinguishing arrangements being provided to the satisfaction of the Administration.

19.3.6 If accommodation spaces, service spaces, control stations or machinery spaces other than those of category A are located forward of the cargo area in accordance with 19.3.5, the requirements of 3.2.3 should be applied by analogy; i.e. the specified distances should be measured from the after end of a house located forward of the cargo area.

19.3.7 The incinerator should be located outside the external perimeter of the cargo area. Alternative arrangements may, however, be considered by the Administration, provided an equivalent degree of safety is achieved.

19.3.8 The effect which combustion gases may have on adequate vision from the navigating bridge, on air intakes and openings into accommodation, service and machinery spaces, and on deck working areas and passageways should be considered.

19.3.9 Access to the incinerator space should be from the open deck. However, the incinerator control room and incinerator blower space may have direct access to the incinerator space provided that these spaces have an additional access from the open deck. Access openings of the incinerator space should be fitted with self-closing gastight doors.

19.4 Cargo containment and incinerator standards

19.4.1 Integral gravity tanks may be used for hazardous wastes.

19.4.2 The incinerator including burners should be designed and constructed to safety standards acceptable to the Administration*. For materials of construction the provisions of 6.1 apply.

19.4.3 The steel structure of the incinerator including supports and other fixtures should be designed for the most unfavourable static angle of heel within the range of 0^{o} to 30^{o}, taking into account the dynamic loads due to the ship's motion.

19.4.4 Suitable bricklining and insulation should be provided to ensure that any temperature rise will not impair the strength of the incinerator structure or the functioning of the associated auxiliaries and instruments and will not adversely affect personnel safety.

19.4.5 Means should be provided for measuring the temperature on the outside furnace surfaces. Means for alarms should be provided to indicate when the temperature approved by the Administration is exceeded and the process of incineration has to be stopped.

19.5 Cargo transfer

19.5.1 The requirements of 5.1 apply, except that cargo piping should as far as practicable be fitted in the cargo area and that cargo piping leading to the incinerator should:

.1 be fitted at least 760 mm inboard;
.2 if outside the cargo area, be on the open deck;
.3 be clearly marked; and
.4 be so designed as to allow draining and purging.

19.5.2 Arrangements of the cargo piping and controls should be such as to preclude the discharge overboard of wastes intended to be incinerated during normal cargo handling operations.

19.5.3 Oil fuel and cargo piping systems may be connected in front of the burners, provided that three-way cocks are installed and the oil fuel pipes are fitted with two screw-down non-return valves inside the incinerator space.

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* The standards set out by the Dumping Convention for the control of incineration of wastes and other matter at sea should also be observed.

19.5.4 Remote shutdown devices to cut out the supply of waste and fuel for incineration should be fitted at the control station and on the navigating bridge. Shutoff valves should be located in the cargo area. Where shutoff valves are remotely controlled, provision for local manual operation should be made, or a separate manually operated valve should be fitted.

19.5.5 Flanges of the loading manifold connections should be provided with shields, which may be portable, to guard against the danger of the cargo being sprayed. Drip trays should also be provided.

19.6 Materials of construction

19.6.1 Section 6.2 - special requirements for materials - is replaced by the following:

.1 Aluminium, copper, copper alloys, zinc, galvanized steel or mercury should not be used for cargo tanks, pipelines, valves, fittings and other equipment which may come into contact with the liquid wastes or their vapour.

.2 Materials of construction having a melting point below 925°C, e.g. aluminium and its alloys, should not be used for external piping involved in cargo handling operations on ships intended for the carriage of wastes with a flashpoint not exceeding 60°C (closed cup test). Short lengths of external pipes connected to cargo tanks may be permitted by the Administration if they are provided with fire-resistant insulation.

.3 In determining the scantlings of the cargo system the corrosivity of the waste should be taken into account.

19.7 Tank vent systems

19.7.1 The provisions for controlled venting systems - chapter 8 and section 15.12 apply, except 8.2.1 and 15.12.3.

19.8 Cargo tank environmental control

19.8.1 When the recirculating drop line does not terminate near the bottom of the cargo tank, the tank should be inerted whenever wastes having a flashpoint not exceeding 60°C (closed cup test) are being recirculated to it.

19.8.2 When washing machines using liquids having a flashpoint not exceeding 60°C (closed cup test) are employed, the cargo tank should be inerted.

19.8.3 The oxygen content of the atmosphere in an inerted tank should not exceed 8% by volume in any part of the tank.

19.8.4 An audible and visual alarm should be provided to indicate when the pressure in the vapour space of an inerted cargo tank is less than 0.07 bar gauge.

19.9 Electrical installation

19.9.1 In incinerator spaces, incinerator blower spaces, and adjacent spaces having direct access thereto, the lighting systems, telephone and public address systems and general alarm systems should be of the certified safe type.

19.9.2 All other electrical installations which are fitted in the spaces referred to in 19.9.1 should be of the certified safe type unless the following conditions are complied with:

.1 It is assured that the spaces are adequately ventilated prior to activating installations not of a certified safe type. Interlocks should be provided between fans and the switch gear of such installations to ensure compliance with this requirement.

.2 Installations not of a certified safe type should be automatically switched off in case of loss of the pressure required by 19.11.2.1 and 19.11.3.1. A reasonable time delay may be permitted by the Administration before these installations are switched off.

.3 Installations not of a certified safe type should comply as a minimum with IP 55* or equivalent protection.

19.10 Fire protection and fire extinguishing

19.10.1 The incinerator space should be provided with a fixed foam fire-extinguishing system complying with regulation II-2/8 or II-2/9 of the 1983 SOLAS amendments. This system may be connected to the deck foam fire-extinguishing system.

19.11 Mechanical ventilation in the cargo area and in the incinerator location

19.11.1 For cargo pump rooms the provisions of 15.17 - increased ventilation requirements - apply.

19.11.2 The ventilation system of the incinerator space should be permanent, normally of the positive pressure type and independent of all other air supply systems.

.1 The air pressure should always be positive to the pressure within the furnace (see also 19.9.2.2).

.2 A minimum capacity of 45 changes of air per hour should be provided based upon the total volume of the incinerator space.

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* Reference is made to the Recommendations published by the International Electrotechnical Commission and in particular to Publication 44.

Consideration should be given to venting requirements during maintenance of burners.

19.11.3 The ventilation system of the incinerator blower space should be permanent, normally of the positive pressure type and independent of other air supply systems.

.1 The air pressure should always be positive to the pressure within the furnace (see also 19.9.2.2).

.2 A minimum capacity of 20 changes of air per hour should be provided based upon the total volume of the incinerator blower space.

19.12 Instrumentation and overflow control

19.12.1 Closed gauging devices described in 13.1.1.3 should be fitted and overflow control systems required in 15.19 should be provided.

19.12.2 Vapour detection instruments for toxic and flammable products described in 13.2 should be fitted.

19.13 Personnel protection

19.13.1 The safety equipment described in 14.2, including respiratory and eye protection for every person on board described in 14.2.8, should be provided.

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ANNEX 17

INTERPRETATION OF ANNEX II OF MARPOL 73/78 IN RESPECT OF SHIPS ENGAGED IN DUMPING OPERATIONS AND EXPLANATORY NOTES THERETO (MEPC 25/20, annex 5)

For the purpose of the application of Annex II in respect of ships engaged in the dumping operation of liquid wastes under the London Dumping Convention, the regulations of Annex II should be interpreted as follows.

Interpretation:

Regulation 1(2): Clean ballast means ballast water carried in a tank which, since it was last used to carry liquid wastes for the purpose of dumping at sea under the London Dumping Convention, has been cleaned and the residues therefrom have been discharged and the tank emptied in accordance with the appropriate provisions as identified under the interpretation of regulation 8(1).

Regulation 2(1): Annex II applies to ships designed, equipped and operated to dump at sea liquid wastes which are deemed under regulation 3 to be noxious liquid substances.

Regulation 3(4): For the purpose of the application of Annex II, liquid wastes carried by ships for the purpose of dumping at sea under the London Dumping Convention, shall be treated as category A noxious liquid substances, irrespective of the actual evaluated category.

Regulation 5(1): Dumping ships may discharge cargo tank washings and cargo pump-room bilges either into the sea at the dumpsite under the permit issued under the London Dumping Convention, or to a shore reception facility.

No discharge into the sea from the cargo area or cargo pump-room bilges are permitted whilst the ship is en route to or from the dumpsite.

The P & A Manual for dumping ships should reflect their specialized operations and contain only the applicable information in appendix D to the Standards for Procedures and Arrangements.

Regulation 5(7): This regulation does not apply to ships engaged in dumping at sea since no discharge to the sea within special areas is allowed.

Regulation 5A: This regulation does not apply to vessels engaged in dumping operations under the London Dumping Convention since wastes are treated as category A noxious liquid substances.

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Regulation 7: The Party that loads liquid chemical wastes aboard a dumping ship for dumping at sea should ensure that the loading port has adequate reception facilities to receive cargo tank washings and cargo pump-room bilges, or should ensure that adequate facilities are available at another port. Since dumping ship cargoes are generally compatible, allowing reloading and other waste cargo, reception facilities will normally only be required for purposes in connection with the inspection of cargo tanks or repair of dumping ships.

Regulation 8(1): The Party who issues a permit for dumping under the London Dumping Convention should undertake to ensure that tank cleaning operations are performed in accordance with the ship's P & A Manual and that the cargo tank washings and cargo pump-room bilges are either dumped at the dumpsite or discharged to a reception facility.

Regulation 8(2): At the request of a ship's master, the Government of the port State in which the liquid wastes are loaded aboard a dumping ship may exempt, prior to the ship's departure from the loading port, the ship from the requirements in regulation 8(2)(a) if it is satisfied that the conditions in regulation 8(2)(b)(i) or (ii) are met. For consecutive voyages from the same loading port, a single exemption would suffice.

Regulation 9: Ships engaged in dumping operations under the London Dumping Convention should be provided with a Cargo Record Book. Information that is recorded in another official ship's document need not be recorded in the Cargo Record Book.

Regulation 10: Ships engaged in the dumping of liquid wastes containing noxious liquid substances should be surveyed, taking into account the present interpretations of Annex II for dumping vessels.

Regulation 13: Ships engaged in dumping operations should, as a minimum, comply at least with the Guidelines for the Construction and Equipment of Ships Carrying Hazardous Liquid Wastes in Bulk for the Purpose of Dumping at Sea (Assembly resolution A.582(14) as adopted on 20 November 1985).

Explanatory notes:

1 Although the actual dumping of harmful substances into the sea within the meaning of LDC is not subject to the discharge provisions of MARPOL 73/78 by virtue of its article 2(3)(b)(i), ocean dumping ships as such are subject to the requirements of MARPOL 73/78 by virtue of article 3(1)(a).

2 Since cargoes carried by ships engaged in dumping operations may contain noxious liquid substances of various categories or mixtures containing these substances, Annex II by virtue of its regulation 2(1) also applies to these ships. This implies that the carriage requirements of Annex II, and the operational requirements in respect of discharges other than dumping, are applicable to ocean dumping ships.

3 Since it is impracticable to evaluate each cargo of liquid wastes carried for dumping for the purpose of Annex II categorization, and as these wastes may only be dumped into the sea at the dumpsite under the conditions of the dumping permit issued under LDC, it is recommended that all liquid waste cargoes carried for dumping at sea are treated as if they were category A noxious liquid substances under Annex II. In doing so, anomalies between the two Conventions will be avoided as no discharges into the sea would be allowed other than dumping at the dumpsite. Although LDC does not regulate the discharge of tank washings and pump-room bilges, this also implies that wash water and bilge water contaminated with wastes have to be discharged either at sea, together with the cargo of wastes, at the dumpsite, or to a shore reception facility.

4 Since it is also known that many liquid wastes carried for dumping at sea, if fully evaluated, would pose less harm to the marine environment than category A noxious liquid substances, certain flexibility, as provided for under the interpretations for regulations 1(2) and 8(1), is justified.

5 In view of the unique operations of ocean dumping ships, it is recommended that, in respect of the carriage requirements, compliance with the "Guidelines for the Construction and Equipment of Ships Carrying Hazardous Liquid Wastes in Bulk for the Purpose of Dumping at Sea" (Assembly resolution A.582(14)), should be regarded for these ships as compliance with regulation 13 of Annex II.

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ANNEX 18

GUIDELINES AND STANDARDS FOR THE REMOVAL OF OFFSHORE INSTALLATIONS AND STRUCTURES ON THE CONTINENTAL SHELF AND IN THE EXCLUSIVE ECONOMIC ZONE (LDC 11/8/2)

1 General removal requirement

1.1 Abandoned or disused offshore installations or structures on any continental shelf or in any exclusive economic zone are required to be removed, except where non-removal or partial removal is consistent with the following guidelines and standards.

1.2 The coastal State having jurisdiction over the installation or structure should ensure that it is removed in whole or in part in conformity with these guidelines and standards once it is no longer serving the primary purpose for which it was originally designed and installed or a subsequent new use or no other reasonable justification cited in these guidelines and standards exists for allowing the installation or structure or parts thereof to remain on the sea-bed. Such removal should be performed as soon as reasonably practicable after abandonment or permanent disuse of such installation or structure.

1.3 Notification of such non-removal or partial removal should be forwarded to the Organization.

1.4 Nothing in these guidelines and standards is intended to preclude a coastal State from imposing more stringent removal requirements for existing or future installations or structures on its continental shelf or in its exclusive economic zone.

2 Guidelines

2.1 The decision to allow an offshore installation, structure, or parts thereof to remain on the sea-bed should include a case-by-case evaluation, by the coastal State with jurisdiction over the installation or structure, of the following matters:

.1 any potential effect on the safety of surface or subsurface navigation, or of other uses of the sea;

.2 the rate of deterioration of the material and its present and possible future effect on the marine environment;

.3 the potential effect on the marine environment, including living resources;

.4 the risk that the material will shift from its position at some future time;

.5 the costs, technical feasibility, and risks of injury to personnel associated with removal of the installation or structure; and

.6 the determination of a new use or other reasonable justification for allowing the installation or structure or parts thereof to remain on the sea-bed.

2.2 The determination of any potential effect on safety of surface or subsurface navigation or of other uses of the sea should be based on the number, type and draught of vessels expected to transit the area in the foreseeable future; the cargoes being carried in the area; the tide, current, general hydrographic conditions and potentially extreme climatic conditions; the proximity of designated or customary sea lanes and port access routes; the aids to navigation in the vicinity; the location of commercial fishing areas; the width of the available navigable fairway; and whether the area is an approach to or in straits used for international navigation or routes used for international navigation through archipelagic waters.

2.3 The determination of any potential effect on the marine environment should be based upon scientific evidence taking into account the effect on water quality; geologic and hydrographic characteristics; the presence of endangered or threatened species; existing habitat types; local fishery resources; the potential for pollution or contamination of the site by residual products from or deterioration of the offshore installation or structure.

2.4 The process for allowing an offshore installation or structure or parts thereof to remain on the sea-bed should also include the following actions by the coastal State with jurisdiction over the installation or structure: specific official authorization identifying the conditions under which an installation or structure or parts thereof will be allowed to remain on the sea-bed; a specific plan, adopted by the coastal State, to monitor the accumulation and deterioration of material left on the sea-bed to ensure there is no subsequent adverse impact on navigation, other uses of the sea or the marine environment; advance notice to mariners as to the specific position, dimensions, surveyed depth and markings of any installations or structures not entirely removed from the sea-bed; and advance notice to appropriate hydrographic services to allow for timely revision of nautical charts.

3 Standards

The following standards should be taken into account when a decision is made regarding the removal of an offshore installation or structure.

3.1 All abandoned or disused installations or structures standing in less than 75 metres of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.

3.2 All abandoned or disused installations or structures emplaced on the sea-bed on or after 1 January 1998, standing in less than 100 metres of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.

3.3 Removal should be performed in such a way as to cause no significant adverse effects upon navigation or the marine environment. Installations should continue to be marked in accordance with IALA recommendations prior to the completion of any partial or complete removal that may be required. Details of the position and dimensions of any installations remaining after the removal operations should be promptly passed to the relevant national authorities and to one of the World Charting Hydrographic Authorities. The means of removal or partial removal should not cause a significant adverse effect on living resources of the marine environment, especially threatened and endangered species.

3.4 Where:

.1 an existing installation or structure, including one referred to in paragraphs 3.1 or 3.2, or a part thereof, will serve a new use if permitted to remain wholly or partially in place on the sea-bed (such as enhancement of a living resource); or

.2 an existing installation or structure, other than one referred to in paragraphs 3.1 and 3.2, or part thereof, can be left there without causing unjustifiable interference with other uses of the sea;

the coastal State may determine that the installation or structure may be left wholly or partially in place.

3.5 Notwithstanding the requirements of paragraphs 3.1 and 3.2, where entire removal is not technically feasible or would involve extreme cost, or an unacceptable risk to personnel or the marine environment, the coastal State may determine that it need not be entirely removed.

3.6 Any abandoned or disused installation or structure or part thereof which projects above the surface of the sea should be adequately maintained to prevent structural failure. In cases of partial removal referred to in paragraphs 3.4.2 or 3.5, an unobstructed water column sufficient to ensure safety of navigation, but not less than 55 metres, should be provided above any partially removed installation or structure which does not project above the surface of the sea.

3.7 Installations or structures which no longer serve the primary purpose for which they were originally designed or installed and are located in approaches to or in straits used for international navigation or routes used for international navigation through archipelagic waters, in customary deep-draught sea lanes, or in or immediately adjacent to routeing systems which have been adopted by the Organization should be entirely removed and should not be subject to any exceptions.

3.8 The coastal State should ensure that the position, surveyed depth and dimensions of material from any installation or structure which has not been entirely removed from the sea-bed are indicated on nautical charts and that any remains are, where necessary, properly marked with aids to navigation. The coastal State should also ensure that advance notice of at least 120 days is issued to advise mariners and appropriate hydrographic services of the change in the status of the installation or structure.

3.9 Prior to giving consent to the partial removal of any installation or structure, the coastal State should satisfy itself that any remaining materials will remain on location on the sea-bed and not move under the influence of waves, tides, currents, storms or other foreseeable natural causes so as to cause a hazard to navigation.

3.10 The coastal State should identify the party responsible* for maintaining the aids to navigation, if deemed necessary to mark the position of any obstruction to navigation, and for monitoring the condition of remaining material. The coastal State should also ensure that the responsible party* conducts periodic monitoring, as necessary, to ensure continued compliance with these guidelines and standards.

3.11 The coastal State should ensure that legal title to installations and structures which have not been entirely removed from the sea-bed is unambiguous and that responsibility for maintenance and the financial ability to assume liability for future damages are clearly established.

3.12 Where living resources can be enhanced by the placement on the sea-bed of material from removed installations or structures (e.g. to create an artificial reef), such material should be located well away from customary traffic lanes, taking into account these guidelines and standards and other relevant standards for the maintenance of maritime safety.

3.13 On or after 1 January 1998, no installation or structure should be placed on any continental shelf or in any exclusive economic zone unless the design and construction of the installation or structure is such that entire removal upon abandonment or permanent disuse would be feasible.

3.14 Unless otherwise stated, these standards should be applied to existing as well as future installations or structures.

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* The phrase "party responsible" refers to any juridical or physical person identified by the coastal State for a purpose mentioned in the above paragraph 3.10.

ANNEX 19

1986 REVISION OF THE IAEA DEFINITION AND RECOMMENDATIONS FOR THE SEA DISPOSAL OF RADIOACTIVE WASTE (IAEA Safety series No.78)

DEFINITION OF HIGH LEVEL RADIOACTIVE WASTE OR OTHER HIGH LEVEL RADIOACTIVE MATTER UNSUITABLE FOR DUMPING AT SEA

10. For the purposes of Annex I to the Convention, high level radioactive waste or other high level radioactive matter unsuitable for dumping at sea is defined as follows:

(1) Irradiated reactor fuel; liquid wastes from the first solvent extraction cycle of chemical reprocessing of irradiated reactor fuel, or equivalent processes; and solidified forms of such waste; and

(2) any other waste or matter of activity concentration exceeding:

(a) 5×10^{-5} TBq.kg^{-1} for alpha emitters;
(b) 2×10^{-2} TBq.kg^{-1} for beta/gamma emitters with half-lives of greater than one year[1] (excluding tritium); and
(c) 3 TBq.kg^{-1} for tritium and beta/gamma emitters with half-lives of one year or less.

The above activity concentrations shall be averaged over a gross mass not exceeding 1000 tonnes.

11. Materials of activity concentration less than those in 10(2) shall not be dumped except in accordance with the provisions of the Convention (Annexes II and III thereto) and the Recommendations set out in this document. The maximum dumping rate into a single ocean basin of volume of at least 10^{17}m^3 shall not exceed 10^8kg per year.

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1 For beta/gamma emitting nuclides of half-life greater than 1000 years, Table IX in Annex I of this document should be consulted to ensure that the annual release rate limits for such nuclides are not approached.

ANNEX 20

RESOLUTION LDC 14(7)

DISPOSAL OF RADIOACTIVE WASTES AND OTHER
RADIOACTIVE MATTER AT SEA
(LDC 7/12, annex 3)

THE SEVENTH CONSULTATIVE MEETING,

RECOGNIZING that the marine environment and the living resources of the sea are of vital importance to all nations,

RECOGNIZING that the London Dumping Convention plays a decisive role as a means of protecting the marine environment,

CONSIDERING that the Convention should continue to be an effective global forum for the Contracting Parties in which to pool the advances of science and technology in their efforts to combat marine pollution,

OBSERVING the increasing concern of a growing body of public opinion with regard to the dumping of radioactive substances,

RECOGNIZING that the practice of dumping radioactive substances at sea is limited to a small number of countries and that some of them have suspended such dumping,

NOTING that, given the present state of research on the matter within international bodies, it is considered necessary to carry out programmes to extend current knowledge of dumping zones,

CONSIDERING that the Seventh Consultative Meeting had decided to refer proposals for the amendment of Annexes I and II of the London Dumping Convention regarding the dumping of radioactive wastes and other radioactive matter at sea to an expert meeting on radioactive matters related to the London Dumping Convention,

CALLS for the suspension of all dumping at sea of radioactive materials pending the presentation to the Contracting Parties of the final report of the expert meeting on radioactive matters related to the London Dumping Convention.

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ANNEX 21

RESOLUTION LDC.21(9)

DUMPING OF RADIOACTIVE WASTES AT SEA
(LDC 9/12, annex 4)

THE NINTH CONSULTATIVE MEETING,

RECOGNIZING that the marine environment and the living resources of the sea are of vital importance to all nations and that the objective of the London Dumping Convention is to prevent the pollution of the seas by dumping,

CONSIDERING that the Convention should continue to provide an effective global forum for the Contracting Parties in which to pool the advances of science and technology in their effort to combat marine pollution,

TAKING NOTE of the increasing concern of a growing body of public opinion, and in particular among the populations living near present or potential dumping sites, with regard to the dumping of radioactive wastes at sea,

RECOGNIZING that dumping of radioactive wastes at sea may adversely affect the environment of other nations and of regions located beyond the limits of national jurisdiction in contravention with Principle 21 of the UN Declaration on the Human Environment adopted in Stockholm in June 1972,

RECOGNIZING that, under Article 1 of the Convention, Contracting Parties have pledged themselves specially to take all practicable steps to prevent the pollution of the seas by the dumping of wastes and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea,

RECALLING that the Seventh Consultative Meeting in February 1983 adopted resolution LDC.14(7) which called for the suspension of all dumping at sea of radioactive materials pending the presentation to the Contracting Parties of the final report of an expert meeting on radioactive matters related to the London Dumping Convention,

RECOGNIZING that the practice of dumping radioactive wastes at sea has been limited to a few States which have halted such dumping since the adoption of resolution LDC.14(7) of February 1983,

NOTING the findings of the Expert Panel on the Disposal at Sea of Radioactive Wastes contained in document LDC 9/4, Annex 2, and expressing its appreciation to the experts involved in the preparation of this report,

NOTING that the Expanded Panel of Experts recognizes deficiencies in scientific information that need to be resolved for a rigorous and precise assessment of the consequences of sea dumping of radioactive wastes,

ACCEPTING that, as noted by the Expert Panel, in the comparison between options, social, economic, scientific and technological factors are difficult to quantify on a common basis, especially where the social factors have international dimensions; and that, as also noted by the Expert Panel, in the final analysis social and related factors may outweigh those of a purely scientific and technical nature.

NOTING also the absence of comparison between land-based and sea dumping options,

1. AGREES to a suspension of all dumping at sea of radioactive wastes and other radioactive matter to permit time for the further consideration of issues which would provide a broader basis for an informed judgement on proposals for the amendment of the Annexes of the Convention. This suspension will continue pending the completion of the studies and assessments referred to in paragraphs 2 to 5 hereunder;

2. REQUESTS that additional studies and assessments of the wider political, legal, economic and social aspects of radioactive waste dumping at sea be undertaken by a panel of experts to complement the existing Expanded Panel Report;

3. REQUESTS that further assessments examine the issue of comparative land-based options and the costs and risks associated with these options;

4. REQUESTS that studies and assessments examine the question of whether it can be proven that any dumping of radioactive wastes and other radioactive matter at sea will not harm human life and/or cause significant damage to the marine environment;

5. REQUESTS the IAEA to advise Contracting Parties with respect to certain outstanding scientific and technical issues relating to the sea dumping of radioactive wastes; specifically:

   (a) To determine whether additional risks to those considered in the revised IAEA Definition and Recommendations justify re-examination of the definition of radioactive wastes and other radioactive matter unsuitable for dumping at sea for certain individual radionuclides;

   (b) To establish source (dose) upper bounds appropriate to the practice of radioactive waste dumping under the Convention;

   (c) To define quantitatively the exempt levels of radionuclides for the purposes of the Convention,

6. REQUESTS the Organization to approach appropriate international agencies to establish and maintain an inventory of radioactive wastes from all sources entering the marine environment;

7. CALLS UPON Contracting Parties to develop, as envisaged in Article X, procedures for the assessment of liability in accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment resulting from dumping.

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ANNEX 22

RESOLUTION LDC.28(10)

STUDIES AND ASSESSMENTS PURSUANT TO RESOLUTION LDC.21(9)
(LDC 10/15, annex 11)

THE TENTH CONSULTATIVE MEETING,

RECALLING the findings of the Expanded Panel of Experts on the Disposal at Sea of Radioactive Wastes submitted to the Ninth Consultative Meeting (LDC 9/4),

RECALLING further that pursuant to resolution LDC.21(9) it had been agreed that dumping at sea of radioactive wastes and other radioactive matter should be suspended pending the completion of further studies and assessments,

DECIDES that:

1. An inter-governmental panel of experts on radioactive waste disposal at sea be established in accordance with resolution LDC.21(9).

2. The panel be requested to examine or undertake further studies and assessments, taking account of the work of other competent international and national bodies, on the following:

   .1 the wider political, legal, economic and social aspects of radioactive waste dumping at sea;

   .2 the issue of comparative land-based options and the costs and risks associated with these options;

   .3 the question of whether it can be proven that any dumping of radioactive wastes and other radioactive matter at sea will not harm human life and/or cause significant damage to the marine environment;

3 The panel should take account of information provided, and of work carried out, by international organizations and agencies as requested in the operative paragraphs 5 and 6 of resolution LDC.21(9).

4 The preliminary questionnaire attached at to this resolution at Annex be circulated immediately to all Contracting Parties inviting their comments on the studies and assessments which the panel will examine or undertake as provided above;

5 Contracting Parties submit responses to the questionnaire and any other relevant comments to the International Maritime Organization by 30 April 1987;

6 The panel be requested to submit a preliminary report to the Eleventh Consultative Meeting, including its consideration of the replies to the questionnaire referred to in paragraphs 4 and 5 above and its proposed detailed programme of work;

7 The International Maritime Organization be requested to service the meetings of the panel.

ANNEX

QUESTIONNAIRE FOR CONTRACTING PARTIES PURSUANT TO THE IMPLEMENTATION OF RESOLUTION LDC.28(10)

1 What questions would your country wish to have addressed by the panel of experts in each of the three general areas of study requested in paragraph 2 of resolution LDC.28(10)?

2 What literature would your country wish to have consulted in addressing each of the three general areas of study requested by resolution LDC.28(10)? Please supply complete citations and clear copies of each document, paper or book you wish to have considered.

3 Do you have any of the following? Please elaborate and quantify as appropriate:

(a) nuclear power plants
(i) in operation
(ii) in the planning stage

(b) research reactors
(i) in operation
(ii) in the planning stage

(c) other large nuclear installations

(d) activities in nuclear medicine and in industrial, agricultural and research use of radio-isotopes.

4 Do you have nuclear safety/atomic energy legislation and radiation protection legislation. If so, what are the administrative and regulatory arrangements? Are natural radioactive substances included?

5 In national regulations/legislation, to what extent are the principles of the International Commission on Radiological Protection (e.g. ICRP report 26) followed, or corresponding recommendations of the IAEA?

6 Do you have a current list/data bank of the radioactive substances dumped or released to the environment? Please provide, if possible, and indicate where such dumping or release takes place.

7 Are you carrying out or participating in research on nuclear waste disposal in land or sea? Please elaborate.

8 What kind of environmental monitoring programme for radioactive substances does your country have?

9 Is the information obtained from research and monitoring publicly available?

10 Do you have storage or disposal facilities for radioactive wastes? If so, which prerequisites were required for site selection? What means of transport and kinds of regulations cover the movement of radioactive wastes?

11 Have you dumped, are you dumping or are you planning dumping of radioactive material into the sea?

12 What are your national laws governing the disposal of radioactive waste? Describe briefly.

13 Do you have any specific national laws governing radioactive waste disposal in the sea? If yes, describe briefly.

14 Do local jurisdictions within your country have individual regulations/laws governing the disposal of radioactive waste? How do these relate to national policies and practices?

15 Do you have any judicial decisions interpreting your laws and regulations concerning sea disposal of radioactive waste?

16 In what framework and in what manner are social and economic factors and public opinion introduced into the selection of disposal options for radioactive waste?

17 What techniques does your country use for managing low-level radioactive waste?

18 Does your country treat the disposal of radioactive waste differently from disposal of other hazardous/toxic wastes? Please elaborate.

19 To what extent do you depend upon other countries for the storage and/or disposal of radioactive material?

20 Has your country performed a comparison of land versus sea disposal option(s)? If so, please provide relevant documentation.

21 What are the relevant operational costs and benefits for land disposal compared with sea disposal for low-level radioactive waste?

22 What additional comments would you wish to make regarding any aspect of the agreed studies? What other questions should be asked of the Contracting Parties?

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ANNEX 23

RESOLUTION LDC.5(III)

INCINERATION AT SEA
(LDC III/12, annex 3)

THE THIRD CONSULTATIVE MEETING,

RECALLING Article I of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, which provides that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment,

HAVING NOTED the use of incineration at sea as a means of disposal of wastes containing highly toxic substances and the consequent risks of marine and atmospheric pollution which may result from this process,

DESIRING to prevent such pollution and to minimize the risk of hazards to other vessels or interference with other legitimate uses of the sea which could arise from incineration operations at sea,

RECOGNIZING present methods of incineration at sea as being an interim method of disposal of wastes pending the development of environmentally better solutions, considering at all times the best available technology,

AFFIRMING that the intention of the adoption of mandatory provisions for the control of incineration at sea is not to increase the amounts and kinds of wastes or other matter incinerated at sea for which there are available practical alternative land-based methods of treatment, disposal or elimination,

REAFFIRMING that, in accordance with Article IV(3) of the Convention, Contracting Parties can apply additional regulations for incineration at sea on a national basis,

NOTING that Article VIII of the Convention encourages Contracting Parties, within the framework of the regional conventions, to develop further agreements reflecting the conditions of the geographical area concerned,

RECALLING the decision of the Second Consultative Meeting that provisions for the control of incineration at sea should be implemented by Contracting Parties on a mandatory basis in the form of a legal instrument adopted within the framework of the Convention (LDC II/11, Annex II),

HAVING CONSIDERED the proposed amendments to the Annexes of the Convention for the control of incineration at sea contained in the Report of the Ad Hoc Group of Legal Experts on Dumping,

ADOPTS the following amendments to the Annexes to the Convention in accordance with Articles XIV(4)(a) and XV(2) thereof:

(a) addition of a paragraph 10 to Annex I;

(b) addition of a paragraph E to Annex II; and

(c) addition of an Addendum to Annex I, containing Regulations for the Control of Incineration of Wastes and Other Matter at Sea,

the texts of which are set out in attachment to this Resolution,

ENTRUSTS the Inter-Governmental Maritime Consultative Organization with the task of ensuring, in collaboration with the Governments of France, Spain, the Union of Soviet Socialist Republics and the United Kingdom, that the texts of the above Amendments are drawn up by 1 December 1978 in all official languages of the Convention with the linguistic consistency in each text, which would then become the authentic text of the Annexes to the Convention in the English, French, Russian and Spanish languages,

RESOLVES that for the purposes of Articles XIV(4)(a) and XV(2) of the Convention, 1 December 1978 shall be treated as the date of the adoption of the amendments,

REQUESTS the Secretary-General of the Organization to inform Contracting Parties of the above-mentioned amendments,

REQUESTS the Ad Hoc Group on Incineration at Sea to prepare draft Technical Guidelines for the Control of Incineration of Wastes and Other Matter at Sea with a view to adoption by the Fourth Consultative Meeting,

INVITES Contracting Parties to implement, as an interim measure, the existing Technical Guidelines (LDC II/11, Annex II, with amendments (IAS/9, Annex IV)) and the notification procedure set out in Annex 2 to LDC III/12*.

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* Replaced by Interim Technical Guidelines adopted by the Fourth Consultative Meeting and amended at subsequent Meetings. The amendments adopted by the Eleventh Consultative Meeting are included in the text of the Guidelines set out at appendix 3 to this document.

ADDENDUM TO ANNEX I TO THE CONVENTION

REGULATIONS FOR THE CONTROL OF INCINERATION OF WASTES AND OTHER MATTER AT SEA

PART I

REGULATION 1

Definitions

For the purposes of this Addendum:

(1) "Marine incineration facility" means a vessel, platform, or other man-made structure operating for the purpose of incineration at sea.

(2) "Incineration at sea" means the deliberate combustion of wastes or other matter on marine incineration facilities for the purpose of their thermal destruction. Activities incidental to the normal operation of vessels, platforms or other man-made structures are excluded from the scope of this definition.

REGULATION 2

Application

(1) Part II of these Regulations shall apply to the following wastes or other matter:

(a) those referred to in paragraph 1 of Annex I;
(b) pesticides and their by-products not covered in Annex I.

(2) Contracting Parties shall first consider the practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the wastes or other matter less harmful, before issuing a permit for incineration at sea in accordance with these Regulations. Incineration at sea shall in no way be interpreted as discouraging progress towards environmentally better solutions including the development of new techniques.

(3) Incineration at sea of wastes or other matter referred to in paragraph 10 of Annex I and paragraph E of Annex II, other than those referred to in paragraph (1) of this Regulation, shall be controlled to the satisfaction of the Contracting Party issuing the special permit.

(4) Incineration at sea of wastes or other matter not referred to in paragraphs (1) and (3) of this Regulation shall be subject to a general permit.

(5) In the issue of permits referred to in paragraphs (3) and (4) of this Regulation, the Contracting Parties shall take full account of all applicable provisions of these Regulations and the Technical Guidelines on the Control of Incineration of Waste and Other Matter at Sea for the waste in question.

PART II

REGULATION 3

Approvals and Surveys of the Incineration System

(1) The incineration system for every proposed marine incineration facility shall be subject to the surveys specified below. In accordance with Article VII(1) of the Convention, the Contracting Party which proposes to issue an incineration permit shall ensure that the surveys of the marine incineration facility to be used have been completed and the incineration system complies with the provisions of these Regulations. If the initial survey is carried out under the direction of a Contracting Party a special permit, which specifies the testing requirements, shall be issued by the Party. The results of each survey shall be recorded in a survey report.

(a) An initial survey shall be carried out in order to ensure that during the incineration of wastes and other matter combustion and destruction efficiences are in excess of 99.9 per cent.

(b) As a part of the initial survey the State under whose direction the survey is being carried out shall:

(i) approve the siting, type and manner of use of temperature measuring devices;
(ii) approve the gas samplying system including probe locations, analytical devices, and the manner of recording;
(iii) ensure that approved devices have been installed to automatically shut off the feed of waste to the incinerator if the temperature drops below approved minimum temperatures;
(iv) ensure that there are no means fo disposing of wastes or other matter from the marine incineration facility except by means of the incinerator during normal operations;
(v) approve the devices by which feed rates of waste and fuel are controlled and recorded;
(vi) confirm the performance of the incineration system by testing under intensive stack monitoring, including the measurements of O_2, CO, CO_2, halogenated organic content, and total hydrocarbon content using wastes typical of those expected to be incinerated.

(c) The incineration system shall be surveyed at least every two years to ensure that the incinerator continues to comply with these Regulations. The scope of the biennial survey shall be based upon an evaluation of operating data and maintenance records for the previous two years.

(2) Following the satisfactory completion of a survey, a form of approval shall be issued by a Contracting Party if the incineration system is found to be in compliance with these Regulations. A copy of the survey report shall be attached to the form of approval. A form of approval issued by a Contracting Party shall be recognized by other Contracting Parties unless there are clear grounds for believing that the incineration system is not in compliance with these Regulations. A copy of each form of approval and survey report shall be submitted to the Organization.

(3) After any survey has been completed, no significant changes which could affect the performance of the incineration system shall be made without approval of the Contracting Party which has issued the form of approval.

REGULATION 4

Wastes Requiring Special Studies

(1) Where a Contracting Party has doubts as to the thermal destructibility of the wastes or other matter proposed for incineration, pilot scale tests shall be undertaken.

(2) Where a Contracting Party proposes to permit incineration of wastes or other matter over which doubts as to the efficiency of combustion exist, the incineration system shall be subject to the same intensive stack monitoring as required for the initial incineration system survey. Consideration shall be given to the sampling of particulates, taking into account the solid content of the wastes.

(3) The minimum approved flame temperature shall be that specified in Regulation 5 unless the results of tests on the marine incineration facility demonstrate that the required combustion and destruction efficiency can be achieved at a lower temperature.

(4) The results of special studies referred to in paragraphs (1), (2) and (3) of this Regulation shall be recorded and attached to the survey report. A copy shall be sent to the Organization.

REGULATION 5

Operational Requirements

(1) The operation of the incineration system shall be controlled so as to ensure that the incineration of wastes or other matter does not take place at a flame temperature less that 1250 degrees centrigrade, except as provided for in Regulation 4.

(2) The combustion efficiency shall be at least 99.95±0.05% based on:

$$\text{Combustion efficiency} = \frac{C_{CO_2} - C_{CO}}{C_{CO_2}} \times 100$$

where C_{CO_2} = concentration of carbon dioxide in the combustion gases

C_{CO} = concentration of carbon monoxide in the combustion gases

(3) There shall be no black smoke nor flame extension above the plane of the stack.

(4) The marine incineration facility shall reply promptly to radio calls at all times during the incineration.

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REGULATION 6

Recording Devices and Records

(1) Marine incineration facilities shall utilize recording devices or methods as approved under Regulation 3. As a minimum, the following data shall be recorded during each incineration operation and retained for inspection by the Contracting Party who has issued the permit:

(a) continuous temperature measurements by approved temperature measuring devices;
(b) date and time during incineration and record of waste being incinerated;
(c) vessel position by appropriate navigational means;
(d) feed rates of waste and fuel - for liquid wastes and fuel the flow rate shall be continuously recorded; the latter requirement does not apply to vessels operating on or before 1 January 1979;
(e) CO and CO_2 concentration in combustion gases;
(f) vessel's course and speed.

(2) Approval forms issued, copies of survey reports prepared in accordance with Regulation 3 and copies of incineration permits issued for the wastes or other matter to be incinerated on the facility by a Contracting Party shall be kept at the marine incineration facility.

REGULATION 7

Control over the Nature of Wastes Incinerated

A permit application for the incineration of wastes or other matter at sea shall include information on the characteristics of wastes or other matter sufficient to comply with the requirements of Regulation 9.

REGULATION 8

Incineration Sites

(1) Provisions to be considered in establishing criteria governing the selection of incineration sites shall include, in addition to those listed in Annex III to the Convention, the following:

(a) the atmospheric dispersal characteristics of the area - including wind speed and direction, atmospheric stability, frequency of inversions and fog, precipitation types and amounts, humidity - in order to determine the potential impact on the surrounding environment of pollutants released from the marine incineration facility, giving particular attention to the possibility of atmospheric transport of pollutants to coastal areas;

(b) oceanic dispersal characteristics of the area in order to evaluate the potential impact of plume interaction with the water surface;

(c) availability of navigational aids.

(2) The co-ordinates of permanently designated incineration zones shall be widely disseminated and communicated to the Organization.

REGULATION 9

Notification

Contracting Parties shall comply with notification procedures adopted by the Parties in consultation.

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ANNEX 24

RESOLUTION LDC.33(11)

AMENDMENTS TO THE INTERIM TECHNICAL GUIDELINES ON THE CONTROL OF INCINERATION OF WASTES AND OTHER MATTER AT SEA
(LDC 11/14, annex 5)

THE ELEVENTH CONSULTATIVE MEETING,

RECOGNIZING that Contracting Parties to the Convention when issuing permits for incineration at sea should take full account of the Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea, which had been adopted by the Fourth Consultative Meeting and were subsequently amended by the Fifth, Seventh and Eighth Consultative Meeting,

NOTING that the Scientific Group on Dumping after consideration of the report of the Joint LDC/OSCOM Group of Experts on Incineration at Sea (LDC/OSCOM/IAS 2/9, LDC/OSCOM/IAS 2/9/Corr.1) agreed that further amendments to the Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea were warranted to better reflect the current incineration operational techniques and practices,

1 ADOPTS amendments to the Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea

2 RESOLVES that Contracting Parties to the Convention should:

- take full account of the new Interim Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea as shown in annex;

- give preference to "no waste" and "low waste" technologies when considering individual proposals on incineration at sea.

ANNEX

INTERIM TECHNICAL GUIDELINES ON THE CONTROL OF INCINERATION OF WASTES AND OTHER MATTER AT SEA

1 INTRODUCTION

1.1 In 1978 the Third Consultative Meeting of Contracting Parties to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter adopted Resolution LDC Res.5(III) by which it approved the following amendments to the Annexes to the Convention concerning the prevention and control of pollution by incineration of wastes and other matter at sea:

.1 the addition of a paragraph 10 to Annex I;

.2 the addition of a paragraph E to Annex II; and

.3 the addition of an Addendum to Annex I, containing Regulations for the Control of Incineration of Wastes and Other Matter at Sea.

1.2 Under these amendments, the Contracting Parties shall, in the issue of permits for incineration, apply the Regulation for the Control of Incineration of Wastes and Other Matter at Sea and take full account of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea adopted by the Contracting Parties in consultation. The requirements for the issue of permits for different types of wastes are summarized in the following table:

	Substance	Permit	Regulations	Technical Guidelines
1	Organohalogen compounds; Pesticides and by-products	Special	All provisions of the Regulations in Parts I and II to be applied	All provisions of the Technical Guidelines to be taken into full account
2	Crude oil, fuel oil, etc. taken on board for purpose of disposal; Annex II substances (without pesticides)	Special	Control to the satisfaction of Contracting Parties, taking into account: all applicable provisions of Regulations in Parts I and II	all applicable provisions of the Technical Guidelines
3	Substances not mentioned under (1) and (2) above	General		as under (2) above

1.3 The present Guidelines have been developed on the basis of existing scientific knowledge of the incineration process and on a knowledge of current technology. Although the state of knowledge on the incineration of liquid organochlorine wastes in existing vessels has enabled specific guidelines to be drawn up covering the incineration of these wastes, there remain types of wastes where knowledge is insufficient at present. Scientific work and technical development is, however, proceeding and consequently these Guidelines should be kept under review as the results of further research and investigation become available.

1.4 These Technical Guidlines apply to wastes or other matter loaded or kept on board marine incineration facilities which are defined in Regulation 1(1) and include vessels, platforms or other man-made structures which might at some future date carry out factory operations and generate wastes which could be incinerated at sea. Incineration at sea is defined in Regulation 1(2) and exclude activities incidental to the normal operation of ships (e.g. combustion of ship-generated garbage) or platforms (e.g. flaring of gas from oil production or exploration).

1.5 The incineration of waste at sea must be controlled to safeguard a number of uses of the marine environment as laid down in Annex III to the Convention and the Guidelines for the Implementation and Uniform Interpretation of Annex III, in particular with regard to the specific advice provided on the

practical availability of alternative land-based methods of treatment, disposal or elimination, or of treatment to render the matter less harmful as set out under section C4 of the Guidelines. Additionally, the Resolution of the First Consultative Meeting of Contracting Parties to the London Dumping Convention (1976) recognized that the risks of atmospheric pollution should be taken into account.

1.6 Where the word 'Convention as amended in 1978' is used, this is to be understood as reference to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, with amendments to the Annexes to the Convention adopted in 1978 as listed under 1.1 above. Where the word 'Regulation' is used, this is to be understood as reference to the corresponding regulation of the Addendum to Annex I to the Convention as mentioned in 1.1.3 above.

2 APPROVAL AND SURVEYS OF THE INCINERATION SYSTEM

2.1 Responsibility of Contracting Parties

2.1.1 The initial survey of the marine incineration facility referred to in Regulation 3 should be the responsibility of a Contracting Party. Subsequent surveys of the marine incineration facilities should be the responsibility of the Contracting Party which conducted the initial survey or of a Contracting Party responsible for issuing a permit for current operations in consultation with that Contracting Party.

3 INCINERATION OPERATIONS

3.1 Waste type and feed rates of waste to the incinerator

3.1.1 Continuous flow-measuring devices for recording liquid waste flow rate should be installed on marine incineration facilities. Additional methods of control should be based on a continuous display of the waste and fuel pump status supplemented by manual checks of the type and amount of waste burned every hour, weather and sea state permitting, to be recorded in the log.

3.1.2 Where solid wastes are burned, the waste type and rate of input should be recorded in the log.

3.1.3 The feeding of wastes in containers to the incinerator will necessitate special design and operational requirements in order to comply with Regulation 5. These should include but not be limited to:

.1 the waste should be fed to the incinerator at such a rate that the oxygen demand is well within the capability of the combustion air fan; and

.2 the waste should be fed to the incinerator via an air lock chamber.

3.2 Black smoke and flames above the stack

3.2.1 With regard to Regulation 5(3) "that there shall be no black smoke nor flame extensions above the plane of the stack" experience has shown that under certain operating conditions the appearance of black smoke and flames above the plane of the stack is unavoidable. Such conditions include the following:

.1 the preheating of the incinerator with oil before the incinerator has reached the required operating temperature;

.2 the first introduction of wastes into the preheated incinerator; and

.3 the change of different waste types introduced into the incinerator.

3.2.2 Contracting Parties should ensure that operating standards are used that minimize such occurrences.

3.3 Air feed to the incinerator

3.3.1 The amount of air entering the incinerator should be sufficient to ensure that a minimum of 3 per cent oxygen is present in the combustion gases near the incinerator stack exit. This requirement should be monitored by an automatic oxygen analyser to routinely record oxygen concentrations.

3.3.2 Although existing incinerator vessels employ a fixed air input rate, marine incineration facilities may in the future use a variable air feed in which case this rate should be recorded.

3.4 Temperature controls

3.4.1 Temperature controls and records should be based on the measurement of wall temperature. Unless otherwise determined by the Contracting Party there should be three or more temperature measurement devices for each incinerator.

3.4.2 In order to comply with Regulation 5 the Contracting Party should define the operating wall temperature and the temperature below which the flow of waste to the incinerator should be automatically shut off by approved equipment.

3.4.3 The minimum wall temperature should be 1200°C unless the results of tests on the marine incineration facility demonstrate that the required combustion and destruction efficiencies specified in Regulations 3 and 5 can be achieved at a lower temperature.

3.5 Destruction efficiency

3.5.1 For the purpose of applying Regulation 3 the destruction efficiency should be determined not only for the total organic components of the wastes but additionally for particular substances such as those listed in 5.1.3.

3.6 Residence time

3.6.1 The mean residence time of the incinerator should be of the order of one second or longer at a flame temperature of 1250°C (e.g. as measured by an optical pyrometer) during normal operating conditions.

3.7 Automatic shut-off systems

3.7.1 Devices to shut off the waste feed to the incinerator in accordance with Regulation 3 should include the following:

.1 flame sensors with each burner to stop waste flow to that burner in the event of a flame-out; and

.2 automatic equipment to stop waste flow in the event of wall temperatures falling below 1100°C or the temperature determined in 3.4.3.

3.8 Positioning of measuring devices

3.8.1 In applying Regulation 3(1)(b)(i) and (ii) to approve the siting of temperature measuring devices and gas sampling probes the Contracting Party should take into account that in certain cases flames can be non-homogeneous (e.g. through vortex formation in the incinerator or during incineration of solid or containerized wastes).

4 GENERAL CONTROL OF THE MARINE INCINERATION FACILITY AND ITS OPERATION

4.1 Loading and stowage of wastes

4.1.1 Due to the risk of spillages wastes should not be transferred from barges or other vessels to marine incineration facilities outside harbour limits except where special arrangements have been made for the prevention of spillages to the satisfaction of the Contracting Party.

4.1.2 Wastes in damaged containers should not be taken on board marine incineration facilities.

4.1.3 Containers loaded on board should be adequately labelled.

4.1.4 Containerized wastes should be stowed in accordance with the regulations of the IMO International Maritime Dangerous Goods Code (IMDG Code).

4.2 Disposal of residues

4.2.1 Tank washings and pump-room bilges contaminated with wastes should be incinerated at sea in accordance with the Regulations for the Control of Incineration of Wastes and Other Matter at Sea and with these Technical Guidelines, or discharged to port facilities.

4.2.2 Residues remaining in the incinerator should not be dumped at sea except in accordance with the provisions of the Convention.

4.3 Prevention of hazards to other vessels

4.3.1 In licensing the incineration of wastes and other matter on board approved marine incineration facilities, the Contracting Party should have

regard to the need to avoid hazards to other vessels by appropriate location of the incineration sites or incineration zones concerned and by ensuring that the relevant maritime authorities are notified of the date of sailing and/or intended schedule, as well as the intended movements of the marine incineration facility (whether underway, at anchor, etc.).

4.3.2 Regular radio warnings should be broadcast during the period of incineration.

4.3.3 Contracting Parties in a given geographical area should endeavour to designate common incineration sites in the area.

4.4 Construction of marine incineration facilities

4.4.1 For the carriage of liquid wastes an incineration ship shall carry a valid "Certificate of Fitness" as required under the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code, Chapter 19: Requirements for Ships Engaged in the Incineration at Sea of Liquid Chemical Waste).

4.5 Data recording

4.5.1 In addition to the records required by Regulation 6 of the Addendum to Annex I, marine incineration facilities should also record:

.1 the oxygen concentration in the combustion gases as monitored in accordance with 3.3.1 of these Guidelines;

.2 the air feed rate in accordance with 3.3.2;

.3 the tank(s) from which waste is taken; and

.4 the meteorological conditions, e.g. wind speed and direction.

4.5.2 For the purposes of Regulation 6 and Guideline 3.1.1 "continuous" measurements means that for sampling and datalogging a frequency is chosen which ensures that there is adequate control over incineration operations and that they are carried out in accordance with the requirements of the Regulations and the Interim Technical Guidelines for the Control of Incineration of Wastes and Other Matter at Sea. As a minimum, a frequency of at least 15 minutes is required. For automatic shut-off systems referred to in Guideline 3.7 above, immediate response of the system to temperature decreases below the required operating temperatures is necessary.

4.5.3 Parameters which may require recording in the future, subject to satisfactory technical development, include routine measurement of destruction efficiency and total particulate matter in the combustion gases.

4.5.4 The result of the recording devices under Regulation 6 and the data recording described in paragraphs 4.5.1 to 4.5.3 above should be provided to the Contracting Party which had issued the incineration permit. Where more than one Contracting Party had issued a permit for one incineration operation, arrangements for review of the data should be made among the Contracting Parties involved.

5 NATURE OF WASTES OR OTHER MATTER AND NOTIFICATION PROCEDURES

5.1 Characteristics of wastes

5.1.1 Information on the characteristics of wastes or other matter to be provided in connection with a permit application in accordance with Regulation 7 should include in addition to that in the Appendix hereto, if possible, information on the chemical and physical transformation of the waste after incineration, in particular, subsequent formation of new compounds, composition of ashes or unburned residues.

5.1.2 The physical nature of certain wastes may lead to reduced destruction efficiencies:

.1 emulsions or high concentrations of particulates may lead to atomization problems causing disruption of stable incinerator performance. When possible, pre-treatment of the wastes to reduce these features is advised; and

.2 water layers may also cause a disturbance of the incineration performance at the moment when the water layer "hits" the flame zone. Nonetheless, adequate destruction efficiency of such layers can be achieved by ensuring a homogeneuous waste feed to the incinerator through the use of mixing techniques in the on-board storage tanks and, where appropriate, the use of support fuels.

5.1.3 For the purpose of Regulation 4, examples of wastes or other matter over which doubts exist as to the thermal destruction and efficiency of combustion are listed as follows:

.1 Polychlorinated biphenyls (PCB's)
.2 Polychlorinated terphenyls (PCT's)
.3 Tetrachloro-dibenzo-p-dioxin (TCDD)
.4 Benzene hexachloride (BHC)
.5 Dichlorodiphenyl trichloroethane (DDT).

5.2 Compliance with paragraphs 8 and 9 of Annex I of the Convention

5.2.1 The Contracting Party must ensure through the application of procedures adopted by Contracting Parties in consultation that the incineration of a waste containing Annex I substances should not result in the introduction of Annex I substances into the marine environment unless these are rapidly rendered harmless or are present as trace contaminants. Based on current scientific knowledge on the environmental effects of incinerating liquid organochlorine compounds, this requirement is considered to be met if the Regulations and Technical Guidelines are observed.

5.2.2 Where it is proposed to incinerate wastes at sea containing other Annex I substances or organochlorine compounds referred to in 5.1.3, it will be necessary to determine that the residues entering the marine environment after incineration are rapidly rendered harmless or present as trace contaminants through procedures adopted by the Contracting Parties in consultation.

5.3 Notification of permits issued for incineration at sea

5.3.1 Each Contracting Party should immediately notify the Organization of a Special Permit issued for incineration of wastes or other matter at sea in accordance with Regulation 2(3). A record of the General Permits issued for incineration in the previous calendar year in accordance with Regulation 2(4) should be sent directly or through a Secretariat established under a regional agreement to the Organization by 31 March in each year.

5.3.2 The notifications should contain for each permit the kind of information set out in Appendix hereto.

5.3.3 The Organization should treat notifications of incineration permits in the same way as permits issued for dumping.

APPENDIX

NOTIFICATION FORM FOR INCINERATION PERMITS

The notification shall contain the following information for each permit:

1 issuing authorities;

2 date issued;

3 period for which the permit is valid;

4 country of origin of wastes and port of loading;

5 total quantity of wastes (in metric units) covered by the permit;

6 form in which the waste is presented (bulk or containers; in the latter case, also size and labelling);

7 composition of the waste, such as:

.1 principal organic components;

.2 organohalogens;

.3 main inorganic components;

.4 solids in suspension; and

.5 other relevant constituents;

8 properties of the waste, such as:

.1 physical form;

.2 specific gravity;

.3 viscosity;

.4 calorific value;

.5 radioactivity; and

.6 toxicity and persistence, if necessary;

9 industrial process giving rise to the waste;

10 name of the marine incineration facility and state of registration;

11 area of incineration (geographical location; distance from the nearest coast);

12 expected frequencies of incineration;

13 special conditions relating to the operation of the marine incineration facility which are more stringent than those specified in the Regulations or other than those in the Technical Guidelines;

14 additional information, such as relevant factors listed in Annex III to the Convention.

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ANNEX 25

RESOLUTION LDC.34(11)

GUIDELINES FOR THE SURVEILLANCE OF CLEANING OPERATIONS CARRIED OUT AT SEA ON BOARD INCINERATION VESSELS
(LDC 11/14, annex 6)

THE ELEVENTH CONSULTATIVE MEETING,

RECALLING Article I of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, which provides that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution in the marine environment,

RECALLING FURTHER that Regulations for the Control of Incineration of Wastes and Other Matter had been adopted at its Third Meeting as set forth in an Addendum to Annex I to the Convention and that this constitutes an integral part of that Annex,

RECOGNIZING that in issuing permits for incineration at sea Contracting Parties shall take full account of Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea,

BEING AWARE that cleaning operations of incineration systems and of tanks of incineration vessels may have to take place at sea,

RECOGNIZING that the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea provide that:

- tanks washings and pump room bilges contaminated with wastes should be incinerated at sea in accordance with the Regulations for the Control of Incineration of Wastes and Other Matter at Sea and with the Technical Guidelines, or discharged to port facilities; and that

- residues remaining in the incinerator should not be dumped at sea except in accordance with the provisions of the Convention,

RECOGNIZING FURTHER that the Marine Environment Protection Committee of the International Maritime Organization concluded that Annex II of MARPOL 73/78 applies to tank cleaning operations conducted on board incinerator ships and that it adopted interpretations to clarify the requirements for the specialized operations of incinerator ships and to reduce duplication of requirements,

NOTING that there should be consistency on surveillance procedures developed under the London Dumping Convention and MARPOL 73/78,

NOTING FURTHER that, in accordance with Article VII, paragraph 1 of the London Dumping convention, each Contracting Party shall apply the measures required to implement that Convention to all vessels registered in its territory or flying its flag, or loading in its territory or territorial seas matter which is to be dumped,

1 ADOPTS the guidelines on the surveillance of cleaning operations carried out at sea on board incineration vessels as described in the Annex to the present resolution,

2 RESOLVES that Contracting Parties should take full account of the guidelines on the surveillance of cleaning operations carried out at sea on board incineration vessels.

ANNEX

GUIDELINES FOR THE SURVEILLANCE OF CLEANING OPERATIONS CARRIED OUT AT SEA ON BOARD INCINERATION VESSELS

A Contracting Party to the London Dumping Convention should, when issuing permits for incineration at sea pursuant to Article VI(2) of the London Dumping Convention ensure that the following conditions for surveillance of tank cleaning operations are met:

1 Each permit should include specific provisions:

.1 requiring tank washings and pump-room bilges contaminated with wastes to be incinerated at sea or discharged to port facilities;

.2 concerning surveillance of tank cleaning and residue disposal operations and the location at which those operations are to be conducted;

.3 requiring the master of the incinerator ship, prior to its departure from the loading port, to inform the Contracting Party issuing the permit or performing the tank cleaning surveillance

- whether the tanks will be cleaned prior to arrival at the ship's next port of call, and

- of the intended means of residue disposal.

For consecutive voyages from the same loading port a single notification would be sufficient;

.4 requiring that the incinerator ship have on board procedures for conducting tank cleaning operations and residue disposal operations. Procedures for these operations included in an approved Procedures and Arrangements Manual required by Annex II of MARPOL 73/78 are acceptable for this condition;

.5 requiring that a surveyor approved by the Contracting Party be on board the ships

- to witness the tank cleaning and residue disposal operations; and

- to assure that those operations are completed according to procedures established by the Contracting Party such as those included in an approved Procedures and Arrangements Manual required by Annex II of MARPOL 73/78;

.6 requiring that a record of pertinent information respecting each operational procedure in cleaning tanks and disposing of the residue be made in an appropriate ship's record. Information to be recorded should indicate the ship has complied with the approved procedures for tank cleaning and should include data such as the date, time, type and quantity of waste, identity of tanks cleaned, equipment and solvents used for tank cleaning, duration of cleaning, name and location of reception facility, etc. Entries in the ship's Cargo Record Book required by Annex II of MARPOL 73/78 provide a satisfactory record to meet this requirement. The surveyor should sign the record and state that the tank cleaning and residue disposal operations were correctly and completely performed in compliance with the incineration permit and the procedures acceptable to the Contracting Party.

2 The Contracting Party should ensure that the terminal or port at which the liquid chemical wastes for incineration are loaded aboard the incinerator ship can provide reception facilities or shall ensure through written confirmation that adequate reception facilities are provided at another port which are adequate to receive residues of waste for incineration as will remain for disposal ashore. Since incinerator ship cargoes are generally compatible, reception facilities will normally be required in connection with inspection of the cargo tanks or repair of the incinerator ship.

3 An appropriately qualified surveyor should be appointed, or otherwise approved, to witness the tank cleaning and residue disposal operation, and to ensure that those operations are completed according to procedures acceptable to the Contracting Party, which may be included in an approved Procedures and Arrangements Manual required by Annex II of MARPOL 73/78. The surveyor should prepare a report of the tank cleaning and residue disposal operations for submission by the Contracting Party to the Organization for circulation to all Contracting Parties to the London Dumping Convention.

All Contracting Parties should co-operate to ensure the incineration permit conditions and the surveillance guidelines herein are met. Co-operation may include providing specific assistance, as agreed upon between the concerned Contracting Parties, which may include arrangements to provide the surveyor for surveillance of the tank cleaning operations.

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ANNEX 26

INTERPRETATION OF ANNEX II OF MARPOL 73/78
IN RESPECT OF INCINERATOR SHIPS
(MEPC 23/22, annex 7)

Regulation 2(1)	Annex II applies to ships specially designed, equipped and operated to incinerate at sea liquid chemical waste substances which are deemed under regulation 3(4) to be noxious liquid substances.
Regulation 3(4)	Liquid chemical wastes for incineration at sea are classified as category A noxious liquid substances.
Regulation 5(1)	Incinerator ships may either discharge cargo tank washings and cargo pump-room bilges to a reception facility or incinerate them at sea in accordance with the London Dumping Convention. No discharges into the sea from the cargo area, cargo pump-room bilges or the incinerator space are permitted. The residual concentration for listing in column III of appendix II to this Annex is nil, since all discharges into the sea are prohibited. The P and A Manual for an incinerator ship should reflect their specialized operations and contain only that information in appendix D to the Standards for Procedures and Arrangements that applies.
Regulation 5(7)	This regulation does not apply to ships engaged in incineration of waste at sea, since no discharge to the sea is allowed.
Regulation 5A	This regulation does not apply to ships engaged in incineration of waste at sea, since liquid chemical wastes are classified as category A noxious liquid substances.
Regulation 7	The Party that loads liquid chemical wastes aboard an incinerator ship for incineration at sea should ensure that the loading port has adequate reception facilities to receive residues from waste as would remain for disposal ashore or should ensure that adequate disposal arrangements are made at another port. Since incinerator ship cargoes are generally compatible, reception facilities will normally only be required for purposes in connection with the inspection of cargo tanks or repair of incinerator ships.

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Regulation 8(1)	The Party that loads waste aboard an incinerator ship should provide a surveyor to witness that tank cleaning operations are performed in accordance with the ship's P and A Manual and that the residues are either incinerated at sea or discharged to a reception facility, or ensure arrangements are made with the Party issuing the incineration permit under the London Dumping Convention to provide the surveyor or equivalent inspector.
Regulation 8(2)(b)	At the request of a ship's master, the Government of the Port State in which the liquid chemical is loaded aboard an incinerator ship may exempt, prior to the ship's departure from the loading port, the ship from the requirements in regulation 8(2)(a), if it is satisfied that the conditions in regulations 8(2)(b)(i) or (ii) are met. For consecutive voyages from the same loading port a single exemption would suffice.
Regulation 9	Incinerator ships should be provided with a Cargo Record Book. However, information that is recorded in another official ship's document need not be recorded in the Cargo Record Book.

Explanatory Notes

Applicability of Annex II to incineration vessels

In accordance with article 3(1)(a) of MARPOL 73/78, the Convention applies to ships entitled to fly the flag of a Party to MARPOL. In accordance with regulation 2(1) of Annex II, this Annex applies to ships carrying noxious liquid substances in bulk. However, since the operations of incineration vessels are unique and do not follow those of normal transportation mode, the requirements of Annex II should be interpreted to reflect the specialized operations of incinerator ships.

Provisional classification of waste cargoes for ocean incineration

It is impracticable to evaluate each waste mixture carried for incineration for the purpose of Annex II categorization. It is therefore recommended that waste cargoes carried for the purpose of incineration at sea are classified as category A noxious liquid substances.

Residual concentrations for the purpose of tank cleaning

It is recommended that for the purpose of regulations 5(1) and 5(7) a residual concentration of nil be specified. This means that tank washings must be either discharged to a reception facility or incinerated at sea. This is consistent with present London Dumping Convention guidelines.

Requirements of providing reception facilities

It is recommended that the government of each Party to MARPOL 73/78 whose port or terminal is loading an incinerator ship be responsible for providing reception facilities or ensuring proper arrangements are made for disposal. This will ensure that adequate facilities will be provided for the unique residues resulting from incinerator ship operation and will allow for the discharge of residues ashore in another port only when it is verified that adequate reception facilities are available and proper notifications have been given.

Presence of surveyors on board during tank cleaning operations

It is recommended that surveyors be on board incinerator ships for the complete tank washing operation and during the discharge of the tank washing residues to a reception facility (or during incineration of residues at sea). The surveyor would be required whether the tank washing operation is performed at sea or in port. It would be the responsibility of the Party whose port or terminal loads the waste aboard the incinerator ship to provide the surveyor, or ensure arrangements are made with another nation that issues the incineration permit to provide the surveyor or an equivalent inspector. This allows flexibility to the nations involved so that duplicate surveyors are not witnessing the same operation. The surveyor responsible for supervision of the cleaning operation should prepare a report on the operations for submission to the Secretariat of the London Dumping Convention which will circulate it to the LDC Contracting Parties.

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Record keeping and required manuals

It is recommended that, to reduce duplication and tailor the requirements of Annex II to the operations of incinerator ships, modifications to the P and A Manual and the Cargo Record Book be allowed.

Other issues

Other issues such as the reimbursement of costs for surveillance of tank cleaning operations are felt to be matters outside the scope of Annex II and have not been commented upon.

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ANNEX 27

PRELIMINARY PROCEDURES FOR THE IMPLEMENTATION OF PARAGRAPHS 8 AND 9 OF ANNEX I TO THE LONDON DUMPING CONVENTION FOR THE PURPOSE OF INCINERATION AT SEA*

1 Conditions under which permits for incineration of waste and other matter containing substances listed in Annex I to the London Dumping Convention may be issued

1.1 In accordance with the London Dumping Convention and with the Amendments thereto adopted by the Third Consultative Meeting in 1978, a Contracting Party to the Convention may issue a Special or General Permit for at-sea incineration of wastes containing Annex I substances - other than mercury or cadmium or their compounds as described in 1.3 below - provided that the emission products of the substances entering the atmosphere and sea are rapidly rendered harmless by physical, chemical or biological processes (paragraph 8 of Annex I) or are present as trace contaminants (paragraph 9 of Annex I), and that the requirements of Annexes II and III to the Convention have been met.

1.2 These conditions are considered to be met for Annex I substances other than those described in 1.3 and 1.4 below if the provisions set out in the Amendments to the Convention regarding incineration at sea as adopted in 1978 and the requirements of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea (LDC IV/12, Annex 8 as amended**) are observed.

1.3 For substances listed in paragraphs 2 and 3 of Annex I to the Convention (mercury and cadmium and their compounds), the procedures set out in section 2 below in addition to the procedures developed for the dumping of wastes and other matter at sea specified in the Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I of the London Dumping Convention (LDC<IV/12, Annex 5) should apply. In the latter context, concentrations of mercury or cadmium which would not be considered as trace contaminants for the purpose of direct dumping should also not be considered as trace contaminants for the purpose of incineration at sea.

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* Originally set out in LDC IV/12, Annex 9.

** Amendments were circulated by:

LDC V/12, Annex 6;
LDC 7/12, paragraph 3.19;
LDC 8/10, paragraph 3.27.

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1.4 Substances listed in paragraph 7 of Annex I to the Convention and organohalogen substances mentioned in 5.1.2 of the Technical Guidelines on the Control of Incineration of Wastes and Other Matter at Sea, as well as any other Annex I substances for which a Contracting Party may have doubts concerning compliance with paragraphs 8 and 9 of Annex I to the Convention should be evaluated in accordance with the procedures set out below. In this context, consideration should be given to the possible presence of these substances in very low concentrations in the wastes and to the possibility of their synthesis during incineration.

1.5 The procedures described below are considered to apply equally to the interpretation of "harmlessness" (paragraph 8 of Annex I) and "trace contaminants" (paragraph 9 of Annex I) of emission products resulting from the incineration of wastes and other matter at sea. The emission products may not be regarded as "trace contaminants" and/or being "rapidly rendered harmless" if they occur in such amounts that the incineration of the wastes or other materials could cause undesirable effects, especially the possibility of chronic or acute toxic effects on marine organisms or human health or wildlife whether or not arising from their bioaccumulation in marine organisms and especially in food species. A persistent substance should not be regarded as "harmless" except when present as a "trace contaminant".

1.6 The maximum permissible stack concentration of substances referred to in paragraphs 1.3 and 1.4 above should be based on the procedures outlined below and the best available technology. If the permissible stack concentration is higher than that resulting from the mandatory combustion efficiency specified in the addendum to Annex I to the London Dumping Convention, the combustion efficiency required by the Regulations shall apply.

2 Procedures for the evaluation of the terms "trace contaminants" and "rapidly rendered harmless"

2.1 The maximum permissible stack concentration should be established using a mathematical plume model (taking into account the prevailing atmospheric conditions at the incineration site and the maximum permissible atmospheric concentrations) and by using a dispersion model (taking into account the interaction of the plume with the marine environment and the maximum permissible environmental concentrations for marine life).

2.2 The maximum permissible environmental concentration for the protection of marine life should be established using the procedures developed for dumping and then described in the Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I of the London Dumping Convention (LDC IV/12, Annex 5).

2.3 The maximum permissible atmospheric concentrations for the protection of human health and wildlife should be established, taking into account, among other things, exposure time, site location, and impact on populated areas. A Contracting Party in concurrence with its neighbouring States may develop and use individually or through a regional convention procedures to establish air quality criteria to be used in determining acceptable atmospheric concentrations.

3 Consultation

3.1 If a Contracting Party has doubts about the results of any evaluation mentioned above, the Contracting Party should consult with the Organization and other parties as provided for in LDC IV/12, Annex 5, paragraphs 12-17.

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ANNEX 28

RESOLUTION LDC.35(11)

STATUS OF INCINERATION OF NOXIOUS LIQUID WASTES AT SEA
(LDC 11/14, annex 7)

THE ELEVENTH CONSULTATIVE MEETING,

RECALLING Article 1 of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, which states that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment,

REAFFIRMING that incineration at sea is an interim method of waste disposal, and RECOGNIZING that Contracting Parties should give priority to no waste and low waste technology within the hierarchy of waste management,

ACKNOWLEDGING that the Scientific Group on Dumping has considered the report of the Joint LDC/OSCOM Group of Experts on Incineration at Sea (LDC/OSCOM/IAS 2/9) and advised the Eleventh Consultative Meeting that the information available provides an adequate basis to assess the environmental acceptability and safety of incineration at sea, and recognizing the need to continue to improve the controls and environmental safeguards in the use of incineration at sea,

RECOGNIZING ALSO the concerns of several Contracting Parties that incineration at sea, as a means of disposal of noxious liquid wastes which may contain highly toxic substances, is considered to represent subsequent risks of marine and atmospheric pollution,

RECOGNIZING FURTHER the potential risk of interference with other legitimate uses of the sea which could arise from incineration operations at sea,

NOTING the need to urge States, which have not previously carried out incineration operations at sea, that instead of starting such operations alternatives to incineration at sea should be considered and that particular attention should be given to developing land-based alternatives, providing they are safer and environmentally more acceptable,

AGREES

1 to take all steps possible to minimize or substantially reduce the use of marine incineration of noxious liquid wastes by 1 January 1991;

2 that Contracting Parties shall re evaluate incineration at sea of noxious liquid wastes as early in 1992 as possible with a view to proceeding towards the termination of this practice by 31 December 1994. The re evaluation shall take into account the scientific and

technical aspects of incineration at sea, and the practical availability of safer and environmentally more acceptable land-based alternatives. The re-evaluation shall also take into account any other related information that may be brought forward, with particular attention given to the Oslo Commission experience while phasing out incineration at sea;

3 that Contracting Parties shall not export noxious liquid wastes intended for incineration at sea to any State not Party to the Convention, nor allow their disposal in other ways harmful to the environment;

4 that it is preferable that noxious liquid wastes from coastal States which are to be incinerated at sea be loaded in a harbour of the country from which they originate, and under full control of such a country, instead of being exported to another country; and

5 to employ the revised interim technical guidelines on incineration at sea (resolution LDC.33(11)), reflecting the most recent scientific advice in this field, and the new Guidelines to Annex III C4 (resolution LDC.32(11)) setting out the necessary consideration relevant to the use of incineration at sea.

ANNEX

DRAFT WORK PROGRAMME OF THE SCIENTIFIC GROUP ON DUMPING ON MATTERS RELATED TO INCINERATION AT SEA

1 Contracting Parties of the London Dumping Convention, recalling resolution LDC.35(11) adopted at the 11th Consultative Meeting, stated amongst others:

> "that Contracting Parties shall re-evaluate incineration at sea of noxious liquid wastes as early in 1992 as possible with a view to proceeding towards the termination of this practice by 31 December 1994. The re-evaluation shall take into account the scientific and technical aspects of incineration at sea, and the practical availability of safer and environmentally more acceptable land-based alternatives. The re-evaluation shall also take into account any other related information that may be brought forward, with particular attention given to the Oslo Commission experience while phasing out incineration at sea",

have decided upon the work programme of the Scientific Group on Dumping to be as follows:

.1 advice which might be given to assist in conducting this re-evaluation;

.2 the review of clean technology and practical availability of land-based alternatives; and

.3 to take into account all relevant information on specific aspects of incineration technology and associated environmental implications.

2 As regards this re-evaluation, Contracting Parties feel that the most important issues to be addressed are as follows:

.1 With regard to the practical availability of safer and environmentally more acceptable land-based alternatives:

.1.1 to identify liquid wastes containing organohalogen compounds, or other noxious liquid wastes (e.g. wastes containing mercaptans) which have to be managed in an environmentally safe manner;

.1.2 to carry out an inventory to indicate the amounts and types of these wastes produced in countries around the world and the production processes from which these were derived in recent years (a distinction should be made between, for example, large scale processes and a variety of smaller production processes);

.1.3 on the basis of this inventory to evaluate the present management of these wastes, if possible by addressing aspects such as:

- relevant regulations applied or in preparation
- control requirements and practice
- application of a waste management hierarchy
- prevention/product substitutes/clean technology
- recycling/dechlorination
- destruction technologies
- containment and storage
- dispersal
- import/export, transportation, collection and surveillance of wastes containing organohalogen compounds
- co-operation with other countries;

.1.4 to survey no waste and low waste technologies, as well as alternative abatement technologies, including those that are currently available and those that are presently in the research and development phase;

.1.5 to evaluate of the effectiveness, environmental acceptability, costs and benefits of these alternative technologies, with special attention to the practical steps that would enable transition to these alternatives;

.1.6 to evaluate where possible the administrative, financial, technical and institutional arrangements for dealing with waste management;

.1.7 to draw upon the experience of countries that have already terminated or are in the process of phasing out incineration at sea of specified wastes, in particular Contracting Parties to the Oslo Convention, and to include case studies as well as the names and addresses of national contacts and groups having specialized knowledge and/or responsibilities in the area of clean technologies;

.1.8 to make use of the experience and/or data bases from organizations such as UNEP, EEC, OECD, IACT, Oslo Commission, etc., with regard to the production of wastes containing organohalogen compounds and their source reduction, and of national institutions for environmental waste management within Contracting Parties; and

3 In preparing its report the Scientific Group should take into account all relevant information on specific aspects of incineration technology and associated environmental implications on land or at sea such as:

- the products of incomplete combustion
- the formation of harmful substances in the plume
- environmental contamination by residues from incineration
- effects of organic emissions by incineration on the sea-surface microlayer.

4 The Scientific Group on Dumping is asked to report to the Consultative Meeting in good time for consideration during the re-evaluation of incineration at sea in 1992. In order to assist the Scientific Group on Dumping to carry out its task, independent environmental consultants should be engaged to investigate in more depth selected issues, including the inventory addressed in paragraph 2 above. The Secretary is given the mandate to select the consultants in consultation with the Chairman of the Consultative Meeting and the Scientific Group on Dumping and to organize a thorough briefing of those consultants. Interim reports of the consultants should be made available to the thirteenth meeting of the Scientific Group on Dumping.

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ANNEX 29

RESOLUTION LDC.23(10)

GUIDELINES FOR THE APPLICATION OF THE ANNEXES
TO THE DISPOSAL OF DREDGED MATERIAL
(LDC 10/15, annex 2)

THE TENTH CONSULTATIVE MEETING,

RECALLING Article I of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, which provides that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution in the marine environment,

RECOGNIZING that the major part of the sediments dredged from the waterways of the world either are either not polluted or may possess mitigative properties that diminish the development of adverse environmental impacts after disposal at sea,

RECOGNIZING FURTHER that the major cause of the contamination of sediments requiring to be dredged is the emission of hazardous substances into internal and coastal waters and that problems will continue until such emissions are controlled at source,

RECOGNIZING ALSO the need for maintaining open shipping lanes and harbours for maritime transport and that undue burden should be avoided with regard to the interpretation and application of the provisions of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Dumping Convention, 1972),

RECALLING that the Eighth Consultative Meeting by resolution LDC.17(8) adopted Guidelines for the Application of Annex III to the London Dumping Convention with a view to providing guidance for the uniform interpretation of the factors to be considered in establishing criteria governing the issue of permits for disposal at sea,

RECOGNIZING that for the disposal of dredged material at sea not all of the factors listed in Annex III and their corresponding interpretations are applicable,

RECALLING FURTHER that the Fourth Consultative Meeting adopted Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I to the Convention with a view to providing guidance for the interpretation of certain conditions under which permits may be issued for disposal at sea of hazardous substances for which sea disposal is otherwise prohibited,

NOTING the discussion which took place within the Scientific Group on Dumping on the need to prepare specific guidelines for the application of the Annexes to the Convention with regard to the disposal at sea of dredged material,

HAVING CONSIDERED the draft Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea prepared by the Scientific Group on Dumping,

1. ADOPTS the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea as set out at Annex here to;

2. RESOLVES that Contracting Parties to the Convention when assessing the suitability of dredged material for disposal at sea shall take full account of the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea;

3. AGREES to review the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea within five years time in light of experience gained by Contracting Parties with these guidelines, in particular with regard to the application of the terms "trace contaminants", "rapidly rendered harmless" and "special care" as defined for disposal of dredged material at sea;

4. REQUESTS Contracting Parties to submit to the Organization for distribution to all Contracting Parties information on their experience gained with the above guidelines, including case studies;

5. CALLS UPON Contracting Parties to take all practicable steps to reduce pollution of marine sediments, including control of emissions of hazardous substances into internal and coastal waters.

ANNEX

GUIDELINES FOR THE APPLICATION OF THE ANNEXES TO THE DISPOSAL OF DREDGED MATERIAL

1 INTRODUCTION

1.1 In accordance with article IV(1)(a) of the Convention, Contracting Parties shall prohibit the dumping of dredged material containing substances listed in Annex I unless the dredged material can be exempted under paragraph 8 (rapidly rendered harmless) or paragraph 9 (trace contaminants) of Annex I.

1.2 Furthermore, in accordance with article IV(1)(b) of the Convention, Contracting Parties shall issue special permits for the dumping of dredged material containing substances described in Annex II and, in accordance with Annex II, shall ensure that special care is taken in the disposal at sea of such dredged material.

1.3 In the case of dredged material not subject to the provisions of articles IV(1)(a) and IV(1)(b), Contracting Parties are required under article IV(1)(c) to issue a general permit prior to dumping.

1.4 Permits for the dumping of dredged material shall be issued in accordance with article IV(2) which requires careful consideration of all the factors set forth in Annex III. In this regard, the Eighth Consultative Meeting in adopting Guidelines for the Implementation and Uniform Interpretation of Annex III (resolution LDC.17(8)) resolved that Contracting Parties shall take full account of these Guidelines in considering the factors set forth in that Annex prior to the issue of any permit for the dumping of waste and other matter at sea.

1.5 With regard to the implementation of paragraphs 8 and 9 of Annex I to the Convention, the Fourth Consultative Meeting adopted Interim Guidelines (LDC IV/12, annex 5) which provide advice concerning the conditions under which permits may be issued for dumping wastes containing Annex I substances, and concerning the evaluation of the terms "trace contaminants" and "rapidly rendered harmless"

1.6 Notwithstanding the general guidance referred to in paragraphs 1.4 and 1.5 above, subsequent deliberations by Contracting Parties have determined that the special characteristics of dredged material warrant separate guidelines to be used when assessing the suitability of dredged material for disposal at sea. Such guidelines would be used by regulatory authorities in the interpretation of paragraphs 8 and 9 of Annex I, and in the application of the considerations under Annex III. These Guidelines for the Application of the Annexes to the Disposal of Dredged Material have been prepared for this purpose and, more specifically, are intended to serve the following functions:

.1 to replace the Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I as they apply to dredged material; and

.2 to replace section A of the Guidelines for the Implementation and Uniform Interpretation of Annex III (resolution LDC.17(8)).

2 CONDITIONS UNDER WHICH PERMITS FOR DUMPING OF DREDGED MATERIAL MAY BE ISSUED

2.1 A Contracting Party may after consideration of the factors contained in Annex III issue a general permit for the dumping of dredged material if:

.1 although Annex I substances are present, they are either determined to be present as a "trace contaminant" or to be "rapidly rendered harmless" by physical, chemical or biological processes in the sea provided they do not:
- make edible organisms unpalatable, or
- endanger human health or that of domestic animals; and

.2 the dredged material contains less than significant amounts* of substances listed in part A of Annex II and meets the requirements of part C of Annex II.

2.2 If the conditions under 2.1.2 above are not met a Contracting Party may issue a special permit provided the condition under 2.1.1 has been met. Such a special permit should either prescribe certain special care measures and/or give limiting conditions prescribed by national authorities to diminish the pollution source.

2.3 The assessment procedures and tests described in the following sections are considered to apply equally to the interpretation of "harmlessness" (paragraph 8 of Annex I) and "trace contaminants" (paragraph 9 of Annex I) when applied in association with sections B and C of the Annex III guidelines.

3 ASSESSMENT OF THE CHARACTERISTICS AND COMPOSITION OF DREDGED MATERIAL

This section replaces the Guidelines for the Implementation and Uniform Interpretation of Annex III, part A, and provides an interpretation for the assessment of dredged material. It should be considered in conjunction with parts B and C of the Guidelines on Annex III.

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* The following interpretations of "significant amounts" were agreed by the Eighth Consultative Meeting:

Pesticides and their by-products not covered by Annex I and lead and lead compounds:	0.05% or more by weight in the waste or other matter
All other substances listed in Annex II, paragraph A:	0.1% or more by weight in the waste or other matter

1	Total amount and average composition of matter dumped (e.g. per year)
2	Form, e.g. solid, sludge, liquid, or gaseous

For all dredged material to be disposed of at sea the following information should be obtained:

- gross wet tonnage per site (per unit time)
- method of dredging
- visual determination of sediment characteristics (clay-silt/sand/gravel/boulder)

In the absence of appreciable pollution sources dredged material may be exempted from the testing referred to in these Guidelines in the following section if it meets one of the criteria listed below; in such cases the provisions of Annex III sections B and C should be taken into account:

.1 Dredged material is composed predominantly of sand, gravel or rock and the material is found in areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels;

.2 Dredged material is for beach nourishment or restoration and is composed predominantly of sand, gravel, or shell with particle sizes compatible with material on the receiving beaches; and

.3 In the absence of appreciable pollution sources, dredged material not exceeding 10,000 tonnes per year from small, isolated and single dredging operations, e.g. at marinas or small fishing harbours, may be exempted. Larger quantities may be exempted if the material proposed for disposal at sea is situated away from known existing and historical sources of pollution so as to provide reasonable assurance that such material has not been contaminated.

3	Properties: physical (e.g. solubility and density), chemical and biochemical (e.g. oxygen demand, nutrients) and biological (e.g. presence of viruses, bacteria, yeasts, parasites)

For dredged material that does not meet the above exemptions, further information will be needed to fully assess the impact. Sufficient information may be available from existing sources, for example from field observations on the impact of similar material at similar sites or from previous test data on similar material tested not more than five years previously.

In the absence of this information, chemical characterization will be necessary as a first step to estimate gross loadings of contaminants. This should not mean that each dredged material should be subjected to exhaustive chemical analysis to establish the concentrations of a standard wide-ranging list of chemical elements or compounds; knowledge of local discharges or other sources of pollution, supported by a selective analysis, may often be used to assess the likelihood of contamination. Where such an assessment cannot be made the levels of Annex I and II substances must be established as a minimum.

Where this information coupled with knowledge of the receiving area, indicates that the material to be dumped is substantially similar in chemical and physical properties to the sediments at the proposed disposal site, testing described in the following section might not be necessary.

Where chemical analysis is appropriate, further information may also be useful in interpreting the results of chemical testing, such as:

- density;
- per cent solids (moisture content);
- grain size analysis (% sand, silt, clay); and
- total organic carbon (TOC).

In addition, there are several other parameters which may facilitate the interpretation of the behaviour, fate and effects of dredged material (e.g. sediment transport, pollutant transformation, sediment mitigative properties).

Sampling of sediments from the proposed dredging site should represent the vertical and horizontal distribution and variability of the material to be dredged. Samples should be spaced so as to identify and differentiate between non-contaminated and contaminated locations.

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4 Toxicity
5 Persistence: physical, chemical and biological
6 Accumulation and biotransformation in biological materials or sediments

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The purpose of testing under this section is to establish whether the disposal at sea of dredged material containing Annex I and II substances might cause undesirable effects, especially the possibility of chronic or acute toxic effects on marine organisms or human health, whether or not arising from their bioaccumulation in marine organisms and especially in food species.

The following biological test procedures might not be necessary if the previous characterization of the material and of the receiving area allows an assessment of the environmental impact. If, however, the previous analysis of the material shows the presence of Annex I or Annex II substances in considerable quantities or of substances whose biological effects are not understood, and if there is concern for antagonistic or synergistic effects of more than one substance, or if there is any doubt as to the exact composition or properties of the material, it may be necessary to carry out suitable biological test procedures. These procedures should be carried out on the solid phase with bottom dwelling macrofauna and may include the following:

- acute toxicity tests;
- chronic toxicity tests capable of evaluating long-term sub-lethal effects, such as bioassays covering an entire life cycle; and
- tests to determine the potential for bioaccumulation of the substance of concern.

Substances in dredged material, when entering the marine environment may undergo physical and chemical alteration that directly affects the release, retention, transformation and/or toxicity of these substances. This shall be taken into particular account when carrying out the various tests mentioned above and when interpreting the results of these tests for actual or future dumping site conditions.

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7 Susceptability to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials

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Contaminants in dredged material, after dumping, may be altered by physical, chemical and biochemical processes to more or to less harmful substances. The susceptability of dredged material to such changes should be considered in the light of the eventual fate and effects of the dredged material. In this context field verification of predicted effects is of considerable importance.

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8 Probability of production of taints or other changes reducing marketability of resources (fish, shellfish, etc.)

Proper dump site selection rather than a testing application is recommended. Site selection to minimize impact on commercial or recreational fishery areas is a major consideration in resource protection and is covered in greater detail in section C2 of Annex III.

4 DISPOSAL MANAGEMENT TECHNIQUES

4.1 Ultimately, the problems of contaminated dredged material disposal can be controlled effectively only by control of point source discharges to waters from which dredged material is taken. Until this objective is met, the problems of contaminated dredged material may be addressed by using disposal management techniques.

4.2 The term "disposal management techniques" refers to actions and processes through which the impact of Annex I or Annex II substances contained in dredged material may be reduced to, or controlled at, a level which does not constitute a hazard to human health, harm to living resources, damage to amenities or interference with legitimate uses of the sea. In this context they may, in certain circumstances, constitute additional methods by which dredged material containing Annex I substances may be "rapidly rendered harmless" and which may constitute "special care" in the disposal of dredged material containing Annex II substances.

4.3 Relevant techniques include the utilization of natural physical, chemical and biological processes as they affect dredged material in the sea; for organic material these may include physical, chemical or biochemical degradation and/or transformation that result in the material becoming non-persistent, non-toxic and/or non-biologically available. Beyond the considerations of Annex III sections B and C, disposal management techniques may include burial on or in the sea floor followed by clean sediment capping, utilization of geochemical interactions and transformations of substances in dredged material when combined with sea water or bottom sediment, selection of special sites such as in abiotic zones, or methods of containing dredged material in a stable manner (including on artificial islands).

4.4 Utilization of such techniques must be carried out in full conformity with other Annex III considerations such as comparative assessment of alternative disposal options and these guidelines should always be associated with post-disposal monitoring to assess the effectiveness of the technique and the need for any follow-up management action.

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ANNEX 30

RESOLUTION LDC.29(10)

EXPORT OF WASTES FOR DISPOSAL AT SEA
(LDC 10/15, annex 13)

THE TENTH CONSULTATIVE MEETING,

RECOGNIZING the obligation of Contracting Parties to promote, individually and collectively, the effective control of all sources of pollution of the marine environment,

RECOGNIZING FURTHER the increasing movement of wastes across national boundaries for a variety of purposes such as storage, recycling, treatment, or final disposal,

RECALLING the recommendation of the London Dumping Convention Task Team 2000 Report (LDC 8/4) that Contracting Parties address the problem of the transboundary movement of wastes for disposal at sea,

RECALLING FURTHER Resolution LDC Res.11(V) concerning the export of wastes for incineration at sea,

ACKNOWLEDGING that protection of the marine environment in connection with the transboundary movement of wastes for disposal at sea is a shared responsibility between exporting and receiving countries,

NOTING the activities of such organizations as UNEP, EEC, OECD, and the Oslo Commission in developing rules and guidelines on the transboundary movement of hazardous wastes, and their value in advancing the objectives of the London Dumping Convention,

BEARING IN MIND that the work undertaken in some of these organizations may ultimately lead to an international convention on all aspects of the transboundary movement of hazardous wastes,

BELIEVING that pending the creation of such an international convention it is useful to make recommendations to Contracting Parties on transboundary movements of hazardous wastes destined for disposal at sea,

RECOGNIZING the right of individual States to apply rules governing the export of wastes for sea disposal that are more stringent than international rules and guidelines,

DESIRING that any disposal at sea be conducted in accordance with the requirements of the London Dumping Convention, and appropriate regional conventions,

AGREES to work toward the widespread acceptance and effective application of the Convention,

AGREES FURTHER to recommend that Contracting Parties not export wastes for sea disposal, particularly those containing substances listed in Annex I and II of the London Dumping Convention, to States not Party to the Convention or to an appropriate regional convention unless there are both compelling reasons for such export and clear evidence that the wastes would be disposed of in compliance with the requirements of the London Dumping Convention and such regional conventions,

CALLS on Contracting Parties exporting wastes for sea disposal to:

.1 provide advance notification of any intended movement of such wastes to the receiving country and any other country which may exercise authority over their transport or disposal in sufficient time for an informed assessment;

.2 obtain the prior consent of the appropriate national authorities in any country receiving wastes and issuing the required permit for sea disposal,

URGES Contracting Parties to endeavour to ensure that wastes exported for a purpose other than sea disposal are not ultimately disposed of at sea unless done in compliance with the requirements of the Convention,

REQUESTS that Contracting Parties provide the Organization with the names of the national authorities in their country responsible for receiving advance notification of the transboundary movement of wastes for sea disposal, and requests the Organization to circulate this information among the Contracting Parties,

URGES Contracting Parties to take account of this resolution when negotiating any future international convention on the transboundary movement of hazardous wastes.

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ANNEX 31

RULES OF PROCEDURE FOR THE CONSULTATIVE AND SPECIAL MEETINGS OF THE CONTRACTING PARTIES TO THE CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY DUMPING OF WASTES AND OTHER MATTER

(LDC I/16, annex II)
(LDC 11/14, paragraph 2.5)

Definitions

Rule 1

For the purposes of these Rules of Procedure:

(a) "Convention" means the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter;

(b) "Organization" means the International Maritime Organization, which by Resolution of 18 December 1975, was designated as the Organization responsible for Secretariat duties in relation to the Convention;

(c) "Secretary-General" means the Secretary-General of the International Maritime Organization;

(d) "Meeting" means a Consultative Meeting or a Special Meeting convened in accordance with Article XIV(3)(a) of the Convention;

(e) "Contracting Party" means a State which has deposited an instrument of ratification or accession and for which the Convention is in force;

(f) "Chairman" means the officer elected in accordance with Rule 19 or either of the Vice-Chairmen when exercising the functions of the Chairman;

(g) "Contracting Parties present and voting" means Contracting Parties casting an affirmative or negative vote. Contracting Parties abstaining from voting shall be considered as not voting.

Participation

Rule 2

A Meeting shall be open to all Contracting Parties who shall be invited thereto by the Secretary-General.

Rule 3

The Secretary-General shall send invitations, to be represented by observers at each Meeting, to the following:

(a) States which have signed or acceded to the Convention and which will not be Contracting Parties at the time of the Meeting;

(b) States which have not signed or acceded to the Convention, but which have indicated to the Secretary-General their interest in becoming a Contracting Party;

(c) the United Nations, its Specialized Agencies and the International Atomic Energy Agency;

(d) any other inter-governmental organization which the Contracting Parties, at a Meeting, have decided to invite;

(e) any non-governmental international organization with specialized technical expertise relating to the objectives of the Convention, which the Contracting Parties at a Meeting, have decided to invite.

Rights of Observers in Meetings

Rule 4

(1) All Observers shall have the right to receive the provisional agenda and other appropriate documents relating to the Meeting. They may, with the approval of the Contracting Parties at the Meeting, submit relevant documents.

(2) Observers from States, from the United Nations, its Specialized Agencies and the International Atomic Energy Agency and from other inter-governmental organizations may participate without vote in the deliberations at the Meetings.

(3) Observers from non-governmental international organizations may, upon invitation by the Chairman and with approval of the Contracting Parties at the Meeting, participate in plenary meetings in the deliberations on matters of direct concern to them without vote.

Rule 5

For each Meeting, a Contracting Party shall designate a representative and such alternates, advisers and experts as may be required.

Credentials

Rule 6

Each State and international organization intending to participate in a Meeting shall notify the Secretary-General in writing as soon as possible, and in any case not later than the opening day of the Meeting, of the composition of its delegation or observers to such Meeting.

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Rule 7

For a Meeting convened for the purpose of adopting amendments to the Convention in accordance with Article XV thereof, each Contracting Party shall transmit to the Secretary-General the credentials of its representative and alternates, if any. Credentials shall be issued by the Head of State or by the Head of Government or by the Minister for Foreign Affairs, or by an appropriate authority properly designated by one of them for the purpose. The credentials of each representative and alternate shall be examined by the Secretary-General who shall report thereon to the Meeting. Pending a decision of the Meeting on their credentials, representatives and their alternates, if any, shall be entitled to participate provisionally in the Meeting.

Meetings

Rule 8

Meetings shall be held at the Headquarters of the Organization unless convened elsewhere in accordance with a decision of a previous Meeting.

Rule 9

The Secretary-General, acting on the direction of the Chairman, shall notify the States and organizations referred to in Rules 2 and 3 at least two months in advance of the holding of a Meeting.

Rule 10

A Meeting may decide to hold Meetings in private or public. In the absence of a decision to hold Meetings in public, they shall be held in private.

Subsidiary Bodies

Rule 11

A Meeting may establish such subsidiary bodies as it considers necessary. Such subsidiary bodies shall follow the present Rules of Procedure so far as they are applicable. At each Consultative Meeting, the desirability of continuing the existence of any subsidiary body shall be reviewed.

Agenda

Rule 12

The provisional agenda for a Meeting shall be prepared by the Secretary-General and approved by the Chairman; it shall normally be communicated with the basic supporting documents to the States and organizations invited thereto at least two months before the opening of the Meeting.

Rule 13

The first item on the provisional agenda for a Meeting shall be the adoption of the agenda.

Rule 14

Any item of the agenda of a Meeting, consideration of which has not been completed at that Meeting, shall be included in the agenda of a subsequent Meeting unless otherwise decided by the Meeting.

Rule 15

The provisional agenda for a Meeting shall include, inter alia:

(a) All items the inclusion of which has been requested by a previous Meeting.
(b) Any item proposed by a Contracting Party.
(c) Any amendment to the Convention proposed by a Contracting Party.

Rule 16

The Secretary-General shall report on the technical, administrative and financial implications of any substantive agenda items submitted to a Meeting and, unless the Meeting decides otherwise, no such item shall be considered until the day after the Secretary-General's report has been made available to the Meeting.

Rule 17

In exceptional circumstances the Secretary-General, with the approval of the Chairman, may propose in a supplementary provisional agenda any suitable question which may arise between the despatch of the provisional agenda and the opening day of the Meeting; the supplementary provisional agenda shall be circulated at the earliest possible date. The Meeting shall examine the supplementary provisional agenda together with the provisional agenda.

Rule 18

Unless it determines otherwise, the Meeting shall not proceed to the discussion of any item on the agenda until the day after the relevant documents have been made available to Contracting Parties in all working languages.

Chairman and Vice-Chairman

Rule 19

The Consultative Meeting shall elect[1/] from among Contracting Parties the following officers: a Chairman, a first Vice-Chairman and a second Vice-Chairman, who shall each hold office until the next Consultative Meeting. They shall all be eligible for re-election but may not hold the same office continuously for more than four years. The Chairman or a Vice-Chairman acting as Chairman shall not vote.

Rule 20

If the Chairman is absent from any part of a Meeting, the first Vice-Chairman or in his absence the second Vice-Chairman, shall preside. If the Chairman, for any reason, is unable to complete his term of office, the first Vice-Chairman or in his absence the second Vice-Chairman, shall act as Chairman pending the election of a new Chairman.

Secretary-General

Rule 21

The Secretary-General shall act as Secretary of the Meeting. He may designate any staff member of the Organization to perform any of his functions.

Rule 22

The Secretary-General, or any staff member of the Organization designated by him, may make either oral or written statements concerning any questions under consideration in a Meeting.

Rule 23

Upon reception, the Secretary-General shall provide for translation and circulation to participants of all reports, resolutions, recommendations and other documents of the Meeting and any subsidiary bodies.

Languages

Rule 24

The official languages of a Meeting are English, Chinese, French, Russian and Spanish; the working languages are English, French and Spanish.

1/ The Consultative Meeting, at its eighth session, agreed that officers should be elected at the closure of Meetings and should hold office during the intersessional period and the next session.

Rule 25

Speeches at a Meeting shall be made in one of the official languages and will be interpreted into the other four official languages.

Rule 26

(1) All supporting documents to agenda items of a Meeting shall be issued in the working languages.

(2) All reports, resolutions, recommendations and decisions of a Meeting shall be drawn up in one of the official languages and translated into the other four languages.

Voting

Rule 27

Each Contracting Party represented at a Meeting shall have one vote.

Rule 28

Unless otherwise provided for in the Convention, decisions of a Meeting shall be taken, elections determined and reports, resolutions and recommendations adopted by a majority of the Contracting Parties present and voting, provided the requirements of Rule 34 are satisfied.

Rule 29

(1) A Meeting shall normally vote by show of hands; however, any Contracting Party may request a roll-call which shall be taken in the alphabetical order of the names of the Contracting Parties in English, beginning with the Contracting Party whose name is drawn by lot by the Chairman.

(2) Upon the proposal of any Contracting Party and with the consent of a majority of the Contracting Parties present and voting, the voting procedure of (1) may be set aside and a secret ballot held.

Rule 30

If a vote taken under Rule 28 is equally divided, a second vote shall be taken. This second vote shall be taken at the same Meeting and, if possible, on a subsequent day to that on which the first vote was taken. If this vote also is equally divided, the proposal shall be regarded as rejected.

Rule 31

In a secret ballot two scrutineers shall, on the proposal of the Chairman, be appointed by the Meeting from the delegations present. All invalid votes cast shall be reported to the Meeting.

Elections

Rule 32

The Chairman and Vice-Chairmen shall be elected by secret ballot, unless the Consultative Meeting decides otherwise.

Rule 33

(1) If no candidate obtains a majority of the votes cast in the first ballot, a second ballot shall be taken. The second ballot shall be confined to the two candidates obtaining the largest number of votes, except that:

(a) where two or more candidates obtain the same highest number of votes, the second ballot shall be confined to those candidates;
(b) where two or more candidates obtain the same second highest number of votes, the second ballot shall be confined to those candidates and to the candidate obtaining the highest number of votes.

(2) If necessary, further ballots shall be held until under this Rule the number of candidates is reduced to two. If on the final ballot between two candidates the votes are equally divided the election shall be deferred until the following day, when, if another tie results, the Chairman shall decide between the candidates by drawing lots.

Quorum

Rule 34

The quorum for a Meeting shall be two-fifths of the total number of Contracting Parties or twenty, whichever shall be less.

Conduct of Business

Rule 35

In addition to exercising the powers conferred upon him elsewhere by these Rules, the Chairman shall declare the opening and closing of a Meeting. He shall direct the discussion and ensure observance of these Rules, accord the right to speak, put questions to the vote and announce decisions resulting from the voting.

Rule 36

Contracting Parties shall normally introduce proposals and amendments thereto in writing and hand them to the Secretary-General who shall have copies circulated to participants. As a general rule, no proposal shall be discussed or put to the vote unless copies of it have been made available in all working languages to participants not later than the day preceding the discussion of that proposal. The Chairman may, however, permit the discussion and determination of amendments or of motions as to procedure even though these amendments and motions have not been circulated or have only been circulated the same day.

Rule 37

A Meeting may, on the proposal of the Chairman or a Contracting Party, decide to limit the time to be allowed to each speaker on any particular subject under discussion.

Rule 38

(1) During the discussion of any matter a Contracting Party may rise to a point of order and the point of order shall be decided immediately by the Chairman, in accordance with these Rules of Procedure. A Contracting Party may appeal against the ruling of the Chairman. The appeal shall be put to the vote immediately and the Chairman's ruling shall stand unless overruled by a majority of the Contracting Parties present and voting.

(2) A Contracting Party rising to a point of order may not, at that time, speak on the substance of the matter under discussion.

Rule 39

(1) Subject to the provisions of Rule 38 the following motions shall have precedence, in the order indicated below, over all other proposals or motions before the Meeting:

(a) to suspend a Meeting;
(b) to adjourn a Meeting;
(c) to adjourn the debate on the question under discussion; and
(d) for the closure of the debate on the question under discussion.

(2) Permission to speak on a motion falling within (1)(a) to (d) shall be granted only to the proposer and in addition to one speaker in favour of and two against the motion, after which it shall be put immediately to the vote.

Rule 40

If two or more proposals relate to the same question, a Meeting, unless it decides otherwise, shall vote on the proposals in the order in which they have been submitted.

Rule 41

Parts of a proposal or amendment thereto shall be voted on separately if the Chairman, with the consent of the proposer, so decides, or if any Contracting Party requests that the proposal or amendment thereto be divided and the proposer raises no objection. If objection is raised, permission to speak on the point shall be given first to the mover of the motion to divide the proposal or amendment, and then to the mover of the original proposal or amendment under discussion, after which the motion to divide the proposal or amendment shall be put immediately to the vote.

Rule 42

Those parts of a proposal which have been approved shall then be put to the vote as a whole; if all the operative parts of the proposal or amendment have been rejected, the proposal or amendment shall be considered to be rejected as a whole.

Rule 43

A motion is considered to be an amendment to a proposal if it merely adds to, deletes from or revises part of that proposal. An amendment shall be voted on before the proposal to which it relates is put to the vote, and if the amendment is adopted, the amended proposal shall then be voted on.

Rule 44

If two or more amendments are moved to a proposal, a Meeting shall first vote on the amendment furthest removed in substance from the original proposal and then on the amendment next furthest removed therefrom and so on, until all amendments have been put to the vote. The Chairman shall determine the order of voting on the amendments under this Rule.

Rule 45

A motion may be withdrawn by its proposer at any time before voting on it has begun, provided that the motion has not been amended or that an amendment to it is not under discussion. A motion withdrawn may be reintroduced by any Contracting Party having the right to submit such a motion.

Rule 46

When a proposal has been adopted or rejected, it may not be reconsidered at the same Meeting unless a majority of the Contracting Parties present and voting decides in favour of reconsideration. Permission to speak on a motion to reconsider shall be accorded only to the mover and one other supporter and to two speakers opposing the motion, after which it shall be put immediately to the vote.

Amendments of Rules of Procedure

Rule 47

These Rules of Procedure may be amended by decision of a Meeting, taken by a majority of the Contracting Parties present and voting. A Meeting may decide by a majority vote of Contracting Parties present and voting to suspend the application of a particular rule or rules for the duration of a Meeting or reconsideration of a particular matter.

Application of the Rules

Rule 48

In the event of any conflict between any provision of these Rules and any provision of the Convention, the Convention shall prevail.

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ANNEX 32

RESOLUTION LDC.30(11)

PARTICIPATION OF NON-GOVERNMENTAL INTERNATIONAL ORGANIZATIONS
IN MEETINGS OF THE LONDON DUMPING CONVENTION
(LDC 11/14, annex 2)

THE ELEVENTH CONSULTATIVE MEETING,

RECOGNIZING the value of open discussion and exchange of information on matters relating to the protection of the marine environment,

NOTING the London Dumping Convention Rules of Procedure numbers 3 and 4 relating to the participation of observers in meetings of the Contracting Parties,

RECALLING the important contributions made by non-governmental international organizations to the purposes and objectives of the London Dumping Convention,

RECOGNIZING FURTHER the need to ensure that non-governmental international organizations act in a manner consistent with the basic purposes of the Convention and its rules governing the participation of such organizations,

RECALLING FURTHER the request of the Tenth Consultative Meeting for the Chairman to review during the intersessional period all aspects governing participation by non-governmental international organizations relating to the Convention,

HAVING CONSIDERED the report of the Chairman submitted to the Eleventh Consultative Meeting,

ADOPTS the following guidance relating to the participation of such organizations:

The observer status of non-governmental international organizations shall be governed by rules 3 and 4 of the London Dumping Convention Rules of Procedure, the procedures adopted by the Sixth Consultative Meeting on the participation of non-governmental international organizations as shown in Annex to this resolution, and any other rules and procedures agreed to in the future by the Consultative Meeting.

The IMO Rules Governing Relationship with Non-Governmental International Organizations, the IMO Guidelines on the Grant of Consultative Status, and IMO practice regarding these principles, shall provide guidance with respect to the participation, the granting of observer status, the withdrawal of this status and the rights and obligations of observers.

Further, non-governmental international organizations shall:

1 keep delegation size to the minimum necessary to make a constructive contribution to the meeting;

2 refrain from using the forum of the Consultative Meeting, the Scientific Group on Dumping, or any other meeting of the organs of the Consultative Meeting, for the purpose of demonstrations or the distribution of material which is detrimental to the meetings, as determined by the Chairmen of such meetings;

3 refrain from communicating with the media on any agenda item under discussion at a meeting in a manner prejudicial to the discussions; and

4 respect any specific requirements agreed to by the Contracting Parties relating to the participation of non-governmental international organizations at a meeting of Contracting Parties or any other organ established under the London Dumping Convention.

The Consultative Meeting, or any other meeting of organs established within the framework of the London Dumping Convention may, at any time, decide to take appropriate action in strict accordance with the existing Rules of Procedure of the Convention if in the opinion of a meeting the conduct of any non-governmental international organization is contrary to the rules and guidelines relating to its participation.

ANNEX

PROCEDURES CONCERNING THE PARTICIPATION OF NON-GOVERNMENTAL INTERNATIONAL ORGANIZATIONS AT THE CONSULTATIVE MEETING AND THE SCIENTIFIC GROUP ON DUMPING
(as adopted by the Sixth Consultative Meeting (LDC VI/12, paragraph 1.8))

1 Non-governmental international organizations wishing to participate in any meeting of the Consultative Meeting and the Scientific Group on Dumping shall submit to the Secretariat in writing a request for participation, at least three months in advance of the opening day of the meeting.

2 The acceptance or rejection of any such request made by organizations shall be decided by the "Bureau", consisting of the Chairman, the Vice-Chairmen and the Secretary.

3 The "Bureau" shall decide whether written material submitted by the organizations accepted under paragraph 2 above should be circulated to the Meeting.

4 Oral statements by observers from these organizations shall be permitted only after prior approval by the Chairman.

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ANNEX 33

ADMINISTRATIONS RESPONSIBLE FOR CONTROL OF DUMPING

Points of contact

ARGENTINA

Departamento Contaminación y Mercancías Peligrosas
Prefectura Naval Argentina
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First Assistant Secretary
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BELGIUM

Management Unit of the North Sea and
Scheldt Estuary Mathematical Models (MUMM)
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Radioactive waste dumping

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Radioactive waste dumping

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Radioactive waste dumping

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Radioactive waste dumping

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Radioactive waste dumping

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Radioactive waste dumping

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Radioactive waste dumping

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