ANNEX 3

RESOLUTION LDC.31(11)

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

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.

***