

Subpart A General

40 CFR 227.1 Applicability.

40 CFR 227.1(a)

(a) Section 102 of the Act requires that criteria for the issuance of ocean disposal permits be promulgated after consideration of the environmental effect of the proposed dumping operation, the need for ocean dumping, alternatives to ocean dumping, and the effect of the proposed action on esthetic, recreational and economic values and on other uses of the ocean. This Parts 227 and 228 of this Subchapter H together constitute the criteria established pursuant to section 102 of the Act. The decision of the Administrator, Regional Administrator or the District Engineer, as the case may be, to issue or deny a permit and to impose specific conditions on any permit issued will be based on an evaluation of the permit application pursuant to the criteria set forth in this Part 227 and upon the requirements for disposal site management pursuant to the criteria set forth in Part 228 of this Subchapter H.

40 CFR 227.1(b)

(b) With respect to the criteria to be used in evaluating disposal of dredged materials, this section and Subparts C, D, E, and G apply in their entirety. To determine whether the proposed dumping of dredged material complies with Subpart B, only 227.4, 227.5, 227.6, 227.9 227.10 and 227.13 apply. An applicant for a permit to dump dredged material must comply with all of Subparts C, D, E, G and applicable sections of B, to be deemed to have met the EPA criteria for dredged material dumping promulgated pursuant to section 102(a) of the Act. If, in any case, the Chief of Engineers finds that, in the disposition of dredged material, there is no economically feasible method or site available other than a dumping site, the utilization of which would result in noncompliance with the criteria established pursuant to Subpart B relating to the effects of dumping or with the restrictions established pursuant to section 102(c) of the Act relating to critical areas, he shall so certify and request that the Secretary of the Army seek a waiver from the Administrator pursuant to Part 225.

40 CFR 227.1(c)

(c) The Criteria of this Part 227 are established pursuant to section 102 of the Act and apply to the evaluation of proposed dumping of materials under Title I of the Act. The Criteria of this Part 227 deal with the evaluation of proposed dumping of materials on a case-by-case basis from information supplied by the applicant or otherwise available to EPA or the Corps of Engineers concerning the characteristics of the waste and other considerations relating to the proposed dumping.

40 CFR 227.1(d)

(d) After consideration of the provisions of ⁰⁰227.28 and 227.29, no permit will be issued when the dumping would result in a violation of applicable water quality standards.

40 CFR 227.2 Materials which satisfy the environmental impact criteria of Subpart B.

40 CFR 227.2(a)

(a) If the applicant satisfactorily demonstrates that the material proposed for ocean dumping satisfies the environmental impact criteria set forth in Subpart B, a permit for ocean dumping will be issued unless:

40 CFR 227.2(a)(1)

(1) There is no need for the dumping, and alternative means of disposal are available, as determined in accordance with the criteria set forth in Subpart C; or

40 CFR 227.2(a)(2)

(2) There are unacceptable adverse effects on esthetic, recreational or economic values as determined in accordance with the criteria set forth in Subpart D; or

40 CFR 227.2(a)(3)

(3) There are unacceptable adverse effects on other uses of the ocean as determined in accordance with the criteria set forth in Subpart E.

40 CFR 227.2(b)

(b) If the material proposed for ocean dumping satisfies the environmental impact criteria set forth in Subpart B, but the Administrator or the Regional Administrator, as the case may be, determines that any one of the considerations set forth in paragraph (a)(1), (2) or (3) of this section applies, he will deny the permit application; provided however, that he may issue an interim permit for ocean dumping pursuant to paragraph (d) of ^o220.3 and Subpart F of this Part 227 when he determines that:

40 CFR 227.2(b)(1)

(1) The material proposed for ocean dumping does not contain any of the materials listed in ^o227.5 or listed in ^o227.6, except as trace contaminants; and

40 CFR 227.2(b)(2)

(2) In accordance with Subpart C there is a need to ocean dump the material and no alternatives are available to such dumping; and

40 CFR 227.2(b)(3)

(3) The need for the dumping and the unavailability of alternatives, as determined in accordance with Subpart C, are of greater significance to the public interest than the potential for adverse effect on esthetic, recreational or economic values, or on other uses of the ocean, as determined in accordance with Subparts D and E, respectively.

40 CFR 227.3 Materials which do not satisfy the environmental impact criteria set forth in Subpart B.

If the material proposed for ocean dumping does not satisfy the environmental impact criteria of Subpart B, the Administrator or the Regional Administrator, as the case may be, will deny the permit application; provided however, that he may issue an interim permit pursuant to paragraph (d) of ^o220.3 and Subpart F of this Part 227 when he determines that:

40 CFR 227.3(a)

(a) The material proposed for dumping does not contain any of the materials listed in §227.6 except as trace contaminants, or any of the materials listed in §227.5;

40 CFR 227.3(b)

(b) In accordance with Subpart C there is a need to ocean dump the material; and

40 CFR 227.3(c)

(c) Any one of the following factors is of greater significance to the public interest than the potential for adverse impact on the marine environment, as determined in accordance with Subpart B;

40 CFR 227.3(c)(1)

(1) The need for the dumping, as determined in accordance with Subpart C; or

40 CFR 227.3(c)(2)

(2) The adverse effects of denial of the permit on recreational or economic values as determined in accordance with Subpart D; or

40 CFR 227.3(c)(3)

(3) The adverse effects of denial of the permit on other uses of the ocean, as determined in accordance with Subpart E.

Subpart B Environmental Impact

40 CFR 227.4 Criteria for evaluating environmental impact.

This Subpart B sets specific environmental impact prohibitions, limits, and conditions for the dumping of materials into ocean waters. If the applicable prohibitions, limits, and conditions are satisfied, it is the determination of EPA that the proposed disposal will not unduly degrade or endanger the marine environment and that the disposal will present:

40 CFR 227.4(a)

(a) No unacceptable adverse effects on human health and no significant damage to the resources of the marine environment;

40 CFR 227.4(b)

(b) No unacceptable adverse effect on the marine ecosystem;

40 CFR 227.4(c)

(c) No unacceptable adverse persistent or permanent effects due to the dumping of the particular volumes or concentrations of these materials; and

40 CFR 227.4(d)

(d) No unacceptable adverse effect on the ocean for other uses as a result of direct environmental impact.

40 CFR 227.5 Prohibited materials.

The ocean dumping of the following materials will not be approved by EPA or the Corps of Engineers under any circumstances:

40 CFR 227.5(a)

(a) High-level radioactive wastes as defined in §227.30;

40 CFR 227.5(b)

(b) Materials in whatever form (including without limitation, solids, liquids, semi-liquids, gases or organisms) produced or used for radiological, chemical or biological warfare;

40 CFR 227.5(c)

(c) Materials insufficiently described by the applicant in terms of their compositions and properties to permit application of the environmental impact criteria of this Subpart B;

40 CFR 227.5(d)

(d) Persistent inert synthetic or natural materials which may float or remain in suspension in the ocean in such a manner that they may interfere materially with fishing, navigation, or other legitimate uses of the ocean.

40 CFR 227.6 Constituents prohibited as other than trace contaminants.

40 CFR 227.6(a)

(a) Subject to the exclusions of paragraphs (f), (g) and (h) of this section, the ocean dumping, or transportation for dumping, of materials containing the following constituents as other than trace contaminants will not be approved on other than an emergency basis:

40 CFR 227.6(a)(1)

(1) Organohalogen compounds;

40 CFR 227.6(a)(2)

(2) Mercury and mercury compounds;

40 CFR 227.6(a)(3)

(3) Cadmium and cadmium compounds;

40 CFR 227.6(a)(4)

(4) Oil of any kind or in any form, including but not limited to petroleum, oil sludge, oil refuse, crude oil, fuel oil, heavy diesel oil, lubricating oils, hydraulic fluids, and any mixtures containing these, transported for the purpose of dumping insofar as these are not regulated under the FWPCA;

40 CFR 227.6(a)(5)

(5) Known carcinogens, mutagens, or teratogens or materials suspected to be carcinogens, mutagens, or teratogens by responsible scientific opinion.

40 CFR 227.6(b)

(b) These constituents will be considered to be present as trace contaminants only when they are present in materials otherwise acceptable for ocean dumping in such forms and amounts in liquid, suspended particulate, and solid phases that the dumping of the materials will not cause significant undesirable effects, including the possibility of danger associated with their bioaccumulation in marine organisms.

40 CFR 227.6(c)

(c) The potential for significant undesirable effects due to the presence of these constituents shall be determined by application of results of bioassays on liquid, suspended particulate, and solid phases of wastes according to procedures acceptable to EPA, and for dredged material, acceptable to EPA and the Corps of Engineers. Materials shall be deemed environmentally acceptable for ocean dumping only when the following conditions are met:

40 CFR 227.6(c)(1)

(1) The liquid phase does not contain any of these constituents in concentrations which will exceed applicable marine water quality criteria after allowance for initial mixing; provided that mercury concentrations in the disposal site, after allowance for initial mixing, may exceed the average normal ambient concentrations of mercury in ocean waters at or near the dumping site which would be present in the absence of dumping, by not more than 50 percent; and

40 CFR 227.6(c)(2)

(2) Bioassay results on the suspended particulate phase of the waste do not indicate occurrence of significant mortality or significant adverse sublethal effects due to the dumping of wastes containing the constituents listed in paragraph (a) of this section. These bioassays shall be conducted with appropriate sensitive marine organisms as defined in §227.27(c) using procedures for suspended particulate phase bioassays approved by EPA, or, for dredged material, approved by EPA and the Corps of Engineers. Procedures approved for bioassays under this section will require exposure of organisms for a sufficient period of time and under appropriate conditions to provide reasonable assurance, based on consideration of the statistical significance of effects at the 95 percent confidence level, that, when the materials are dumped, no significant undesirable effects will occur due to chronic toxicity of the constituents listed in paragraph (a) of this section; and

40 CFR 227.6(c)(3)

(3) Bioassay results on the solid phase of the wastes do not indicate occurrence of significant mortality or significant adverse sublethal effects due to the dumping of wastes containing the constituents listed in paragraph (a) of this section. These bioassays shall be conducted with appropriate sensitive benthic marine organisms using benthic bioassay procedures approved by EPA, or, for dredged material, approved by EPA and the Corps of Engineers. Procedures approved for bioassays under this section will require exposure of organisms for a sufficient period of time to provide reasonable assurance, based on considerations of statistical significance of effects at the 95 percent confidence level, that, when the materials are dumped, no significant undesirable effects will occur due either to chronic toxicity or to bioaccumulation of the constituents listed in paragraph (a) of this section; and

40 CFR 227.6(c)(4)

(4) For persistent organohalogen not included in the applicable marine water quality criteria, bioassay results on the liquid phase of the waste show that such compounds are not present in concentrations large enough to cause significant undesirable effects due either to chronic toxicity or to bioaccumulation in marine

organisms after allowance for initial mixing.

40 CFR 227.6(d)

(d) When the Administrator, Regional Administrator or District Engineer, as the case may be, has reasonable cause to believe that a material proposed for ocean dumping contains compounds identified as carcinogens, mutagens, or teratogens for which criteria have not been included in the applicable marine water quality criteria, he may require special studies to be done prior to issuance of a permit to determine the impact of disposal on human health and/or marine ecosystems. Such studies must provide information comparable to that required under paragraph (c)(3) of this section.

40 CFR 227.6(e)

(e) The criteria stated in paragraphs (c)(2) and (3) of this section will become mandatory as soon as announcement of the availability of acceptable procedures is made in the FEDERAL REGISTER. At that time the interim criteria contained in paragraph (e) of this section shall no longer be applicable. As interim measures the criteria of paragraphs (c)(2) and (3) of this section may be applied on a case-by-case basis where interim guidance on acceptable bioassay procedures is provided by the Regional Administrator or, in the case of dredged material, by the District Engineer; or, in the absence of such guidance, permits may be issued for the dumping of any material only when the following conditions are met, except under an emergency permit:

40 CFR 227.6(e)(1)

(1) Mercury and its compounds are present in any solid phase of a material in concentrations less than 0.75 mg/kg, or less than 50 percent greater than the average total mercury content of natural sediments of similar lithologic characteristics as those at the disposal site; and

40 CFR 227.6(e)(2)

(2) Cadmium and its compounds are present in any solid phase of a material in concentrations less than 0.6 mg/kg, or less than 50 percent greater than the average total cadmium content of natural sediments of similar lithologic characteristics as those at the disposal site; and

40 CFR 227.6(e)(3)

(3) The total concentration of organohalogen constituents in the waste as transported for dumping is less than a concentration of such constituents known to be toxic to marine organisms. In calculating the concentration of organohalogens, the applicant shall consider that these constituents are all biologically available. The determination of the toxicity value will be based on existing scientific data or developed by the use of bioassays conducted in accordance with approved EPA procedures; and

40 CFR 227.6(e)(4)

(4) The total amounts of oils and greases as identified in paragraph (a)(4) of this section do not produce a visible surface sheen in an undisturbed water sample when added at a ratio of one part waste material to 100 parts of water.

40 CFR 227.6(f)

(f) The prohibitions and limitations of this section do not apply to the constituents identified in paragraph (a) of this section when the applicant can demonstrate that such constituents are (1) present in the material only as chemical compounds or forms (e.g., inert insoluble solid materials) non-toxic to marine life and non-bioaccumulative in the marine environment upon disposal and thereafter, or (2) present in the material only as chemical compounds or forms which, at the time of dumping and thereafter, will be rapidly rendered non-toxic to marine life and non-bioaccumulative in the marine environment by chemical or biological degradation in the sea; provided they will not make edible marine organisms unpalatable; or will not endanger human health or that of domestic animals, fish, shellfish, or wildlife.

40 CFR 227.6(g)

(g) The prohibitions and limitations of this section do not apply to the constituents identified in paragraph (a) of this section for the granting of research permits if the substances are rapidly rendered harmless by physical, chemical or biological processes in the sea; provided they will not make edible marine organisms unpalatable and will not endanger human health or that of domestic animals.

40 CFR 227.6(h)

(h) The prohibitions and limitations of this section do not apply to the constituents identified in paragraph (a) of this section for the granting of permits for the transport of these substances for the purpose of incineration at sea if the applicant can demonstrate that the stack emissions consist of substances which are rapidly rendered harmless by physical, chemical or biological processes in the sea. Incinerator operations shall comply with requirements which will be established on a case-by-case basis.

40 CFR 227.7 Limits established for specific wastes or waste constituents.

Materials containing the following constituents must meet the additional limitations specified in this section to be deemed acceptable for ocean dumping:

40 CFR 227.7(a)

(a) Liquid waste constituents immiscible with or slightly soluble in seawater, such as benzene, xylene, carbon disulfide and toluene, may be dumped only when they are present in the waste in concentrations below their solubility limits in seawater. This provision does not apply to materials which may interact with ocean water to form insoluble materials;

40 CFR 227.7(b)

(b) Radioactive materials, other than those prohibited by ^o227.5, must be contained in accordance with the provisions of ^o227.11 to prevent their direct dispersion or dilution in ocean waters;

40 CFR 227.7(c)

(c) Wastes containing living organisms may not be dumped if the organisms present would endanger human health or that of domestic animals, fish, shellfish and wildlife by:

40 CFR 227.7(c)(1)

(1) Extending the range of biological pests, viruses, pathogenic microorganisms or other agents capable of infesting, infecting or extensively and permanently altering the normal populations of organisms;

40 CFR 227.7(c)(2)

(2) Degrading uninfected areas; or

40 CFR 227.7(c)(3)

(3) Introducing viable species not indigenous to an area.

40 CFR 227.7(d)

(d) In the dumping of wastes of highly acidic or alkaline nature into the ocean, consideration shall be given to:

40 CFR 227.7(d)(1)

(1) The effects of any change in acidity or alkalinity of the water at the disposal site; and

40 CFR 227.7(d)(2)

(2) The potential for synergistic effects or for the formation of toxic compounds at or near the disposal site. Allowance may be made in the permit conditions for the capability of ocean waters to neutralize acid or alkaline wastes; provided, however, that dumping conditions must be such that the average total alkalinity or total acidity of the ocean water after allowance for initial mixing, as defined in ^o227.29, may be changed, based on stoichiometric calculations, by no more than 10 percent during all dumping operations at a site to neutralize acid or alkaline wastes.

40 CFR 227.7(e)

(e) Wastes containing biodegradable constituents, or constituents which consume oxygen in any fashion, may be dumped in the ocean only under conditions in which the dissolved oxygen after allowance for initial mixing, as defined in ^o227.29, will not be depressed by more than 25 percent below the normally anticipated ambient conditions in the disposal area at the time of dumping.

40 CFR 227.8 Limitations on the disposal rates of toxic wastes.

No wastes will be deemed acceptable for ocean dumping unless such wastes can be dumped so as not to exceed the limiting permissible concentration as defined in ^o227.27; Provided, That this ^o227.8 does not apply to those wastes for which specific criteria are established in ^o227.11 or ^o227.12. Total quantities of wastes dumped at a site may be limited as described in ^o228.8.

40 CFR 227.9 Limitations on quantities of waste materials.

Substances which may damage the ocean environment due to the quantities in which they are dumped, or which may seriously reduce amenities, may be dumped only when the quantities to be dumped at a single time and place are controlled to prevent long-term damage to the environment or to amenities.

40 CFR 227.10 Hazards to fishing, navigation, shorelines or beaches.

40 CFR 227.10(a)

(a) Wastes which may present a serious obstacle to fishing or navigation may be dumped only at disposal sites and under conditions which will insure no unacceptable interference with fishing or navigation.

40 CFR 227.10(b)

(b) Wastes which may present a hazard to shorelines or beaches may be dumped only at sites and under conditions which will insure no unacceptable danger to shorelines or beaches.

40 CFR 227.11 Containerized wastes.

40 CFR 227.11(a)

(a) Wastes containerized solely for transport to the dumping site and expected to rupture or leak on impact or shortly thereafter must meet the appropriate requirements of ^o227.6, 227.7, 227.8, 227.9, and 227.10.

40 CFR 227.11(b)

(b) Other containerized wastes will be approved for dumping only under the following conditions:

40 CFR 227.11(b)(1)

(1) The materials to be disposed of decay, decompose or radiodecay to environmentally innocuous materials within the life expectancy of the containers and/or their inert matrix; and

40 CFR 227.11(b)(2)

(2) Materials to be dumped are present in such quantities and are of such nature that only short-term localized adverse effects will occur should the containers rupture at any time; and

40 CFR 227.11(b)(3)

(3) Containers are dumped at depths and locations where they will cause no threat to navigation, fishing, shorelines, or beaches.

40 CFR 227.12 Insoluble wastes.

40 CFR 227.12(a)

(a) Solid wastes consisting of inert natural minerals or materials compatible with the ocean environment may be generally approved for ocean dumping provided they are insoluble above the applicable trace or limiting permissible concentrations and are rapidly and completely settleable, and they are of a particle size and density that they would be deposited or rapidly dispersed without damage to benthic, demersal, or pelagic biota.

40 CFR 227.12(b)

(b) Persistent inert synthetic or natural materials which may float or remain in suspension in the ocean as prohibited in paragraph (d) of ^o227.5 may be dumped in the ocean only when they have been processed in such a fashion that they will sink to the bottom and remain in place.

40 CFR 227.13 Dredged materials.

40 CFR 227.13(a)

(a) Dredged materials are bottom sediments or materials that have been dredged or excavated from the navigable waters of the United States, and their disposal into ocean waters is regulated by the U.S. Army Corps of Engineers using the criteria of applicable sections of Part 227 and 228. Dredged material consists primarily of natural sediments or materials which may be contaminated by municipal or industrial wastes or by runoff from terrestrial sources such as agricultural lands.

40 CFR 227.13(b)

(b) Dredged material which meets the criteria set forth in the following paragraphs (b)(1), (2), or (3) of this section is environmentally acceptable for ocean dumping without further testing under this section:

40 CFR 227.13(b)(1)

(1) Dredged material is composed predominantly of sand, gravel, rock, or any other naturally occurring bottom material with particle sizes larger than silt, 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; or

40 CFR 227.13(b)(2)

(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; or

40 CFR 227.13(b)(3)

(3) When: (i) The material proposed for dumping is substantially the same as the substrate at the proposed disposal site; and

40 CFR 227.13(b)(3)(ii)

(ii) The site from which the material proposed for dumping is to be taken is far removed from known existing and historical sources of pollution so as to provide reasonable assurance that such material has not been contaminated by such pollution.

40 CFR 227.13(c)

(c) When dredged material proposed for ocean dumping does not meet the criteria of paragraph (b) of this section, further testing of the liquid, suspended particulate, and solid phases, as defined in §227.32, is required. Based on the results of such testing, dredged material can be considered to be environmentally acceptable for ocean dumping only under the following conditions:

40 CFR 227.13(c)(1)

(1) The material is in compliance with the requirements of §227.6; and

40 CFR 227.13(c)(2)

(2) (i) All major constituents of the liquid phase are in compliance with the applicable marine water quality criteria after allowance for initial mixing; or

40 CFR 227.13(c)(2)(ii)

(ii) When the liquid phase contains major constituents not included in the applicable marine water quality criteria, or there is reason to suspect synergistic effects of certain contaminants, bioassays on the liquid phase of the dredged material show that it can be discharged so as not to exceed the limiting permissible concentration as defined in paragraph (a) of §227.27; and

40 CFR 227.13(c)(3)

(3) Bioassays on the suspended particulate and solid phases show that it can be discharged so as not to exceed the limiting permissible concentration as defined in paragraph (b) of §227.27.

40 CFR 227.13(d)

(d) For the purposes of paragraph (c)(2) of this section, major constituents to be analyzed in the liquid phase are those deemed critical by the District Engineer, after evaluating and considering any comments received from the Regional Administrator, and considering known sources of discharges in the area.

Subpart C Need for Ocean Dumping

40 CFR 227.14 Criteria for evaluating the need for ocean dumping and alternatives to ocean dumping.

This Subpart C states the basis on which an evaluation will be made of the need for ocean dumping, and alternatives to ocean dumping. The nature of these factors does not permit the promulgation of specific quantitative criteria of each permit application. These factors will therefore be evaluated if applicable for each proposed dumping on an individual basis using the guidelines specified in this Subpart C.

40 CFR 227.15 Factors considered.

The need for dumping will be determined by evaluation of the following factors:

40 CFR 227.15(a)

(a) Degree of treatment useful and feasible for the waste to be dumped, and whether or not the waste material has been or will be treated to this degree before dumping;

40 CFR 227.15(b)

(b) Raw materials and manufacturing or other processes resulting in the waste, and whether or not these materials or processes are essential to the provision of the applicant's goods or services, or if other less polluting materials or processes could be used;

40 CFR 227.15(c)

(c) The relative environmental risks, impact and cost for ocean dumping as opposed to other feasible alternatives including but not limited to:

40 CFR 227.15(c)(1)

(1) Land fill;

40 CFR 227.15(c)(2)

(2) Well injection;

40 CFR 227.15(c)(3)

(3) Incineration;

40 CFR 227.15(c)(4)

(4) Spread of material over open ground;

40 CFR 227.15(c)(5)

(5) Recycling of material for reuse;

40 CFR 227.15(c)(6)

(6) Additional biological, chemical, or physical treatment of intermediate or final waste streams;

40 CFR 227.15(c)(7)

(7) Storage.

40 CFR 227.15(d)

(d) Irreversible or irretrievable consequences of the use of alternatives to ocean dumping.

40 CFR 227.16 Basis for determination of need for ocean dumping.

40 CFR 227.16(a)

(a) A need for ocean dumping will be considered to have been demonstrated when a thorough evaluation of the factors listed in 227.15 has been made, and the Administrator, Regional Administrator or District Engineer, as the case may be, has determined that the following conditions exist where applicable:

40 CFR 227.16(a)(1)

(1) There are no practicable improvements which can be made in process technology or in overall waste treatment to reduce the adverse impacts of the waste on the total environment;

40 CFR 227.16(a)(2)

(2) There are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping.

40 CFR 227.16(b)

(b) For purposes of paragraph (a) of this section, waste treatment or improvements in processes and alternative methods of disposal are practicable when they are available at reasonable incremental cost and energy expenditures, which need not be competitive with the costs of ocean dumping, taking into account the environmental benefits derived from such activity, including the relative adverse environmental impacts associated with the use of alternatives to ocean dumping.

40 CFR 227.16(c)

(c) The duration of permits issued under Subchapter H and other terms and conditions imposed in those permits shall be determined after taking into account the factors set forth in this section. Notwithstanding compliance with Subparts B, D, and E of this Part 227 permittees may, on the basis of the need for and alternatives to ocean dumping, be required to terminate all ocean dumping by a specified

date, to phase out all ocean dumping over a specified period or periods, to continue research and development of alternative methods of disposal and make periodic reports of such research and development in order to provide additional information for periodic review of the need for and alternatives to ocean dumping, or to take such other action as the Administrator, the Regional Administrator, or District Engineer, as the case may be, determines to be necessary or appropriate.

Subpart D Impact of the Proposed Dumping on Esthetic, Recreational and Economic Values

40 CFR 227.17 Basis for determination.

40 CFR 227.17(a)

(a) The impact of dumping on esthetic, recreational and economic values will be evaluated on an individual basis using the following considerations:

40 CFR 227.17(a)(1)

(1) Potential for affecting recreational use and values of ocean waters, inshore waters, beaches, or shorelines;

40 CFR 227.17(a)(2)

(2) Potential for affecting the recreational and commercial values of living marine resources.

40 CFR 227.17(b)

(b) For all proposed dumping, full consideration will be given to such nonquantifiable aspects of esthetic, recreational and economic impact as:

40 CFR 227.17(b)(1)

(1) Responsible public concern for the consequences of the proposed dumping;

40 CFR 227.17(b)(2)

(2) Consequences of not authorizing the dumping including without limitation, the impact on esthetic, recreational and economic values with respect to the municipalities and industries involved.

40 CFR 227.18 Factors considered.

The assessment of the potential for impacts on esthetic, recreational and economic values will be based on an evaluation of the appropriate characteristics of the material to be dumped, allowing for conservative rates of dilution, dispersion, and biochemical degradation during movement of the materials from a disposal site to an area of significant recreational or commercial value. The following specific factors will be considered in making such an assessment:

40 CFR 227.18(a)

(a) Nature and extent of present and potential recreational and commercial use of areas which might be affected by the proposed dumping;

40 CFR 227.18(b)

(b) Existing water quality, and nature and extent of disposal activities, in the areas which might be affected by the proposed dumping;

40 CFR 227.18(c)

(c) Applicable water quality standards;

40 CFR 227.18(d)

(d) Visible characteristics of the materials (e.g., color, suspended particulates) which result in an unacceptable esthetic nuisance in recreational areas;

40 CFR 227.18(e)

(e) Presence in the material of pathogenic organisms which may cause a public health hazard either directly or through contamination of fisheries or shellfisheries;

40 CFR 227.18(f)

(f) Presence in the material of toxic chemical constituents released in volumes which may affect humans directly;

40 CFR 227.18(g)

(g) Presence in the material of chemical constituents which may be bioaccumulated or persistent and may have an adverse effect on humans directly or through food chain interactions;

40 CFR 227.18(h)

(h) Presence in the material of any constituents which might significantly affect living marine resources of recreational or commercial value.

40 CFR 227.19 Assessment of impact.

An overall assessment of the proposed dumping and possible alternative methods of disposal or recycling will be made based on the effect on esthetic, recreational and economic values based on the factors set forth in this Subpart D, including where applicable, enhancement of these values, and the results of the assessment will be expressed, where possible, on a quantitative basis, such as percentage of a resource lost, reduction in use days of recreational areas, or dollars lost in commercial fishery profits or the profitability of other commercial enterprises.

Subpart E Impact of the Proposed Dumping on Other Uses of the Ocean

40 CFR 227.20 Basis for determination.

40 CFR 227.20(a)

(a) Based on current state of the art, consideration must be given to any possible long-range effects of even the most innocuous substances when dumped in the ocean on a continuing basis. Such a consideration is made in evaluating the relationship of each proposed disposal activity in relationship to its potential for long-range impact on other uses of the ocean.

40 CFR 227.20(b)

(b) An evaluation will be made on an individual basis for each

proposed dumping of material of the potential for effects on uses of the ocean for purposes other than material disposal. The factors to be considered in this evaluation include those stated in Subpart D, but the evaluation of this Subpart E will be based on the impact of the proposed dumping on specific uses of the ocean rather than on overall esthetic, recreational and economic values.

40 CFR 227.21 Uses considered.

An appraisal will be made of the nature and extent of existing and potential uses of the disposal site itself and of any areas which might reasonably be expected to be affected by the proposed dumping, and a quantitative and qualitative evaluation made, where feasible, of the impact of the proposed dumping on each use. The uses considered shall include, but not be limited to:

40 CFR 227.21(a)

(a) Commercial fishing in open ocean areas;

40 CFR 227.21(b)

(b) Commercial fishing in coastal areas;

40 CFR 227.21(c)

(c) Commercial fishing in estuarine areas;

40 CFR 227.21(d)

(d) Recreational fishing in open ocean areas;

40 CFR 227.21(e)

(e) Recreational fishing in coastal areas;

40 CFR 227.21(f)

(f) Recreational fishing in estuarine areas;

40 CFR 227.21(g)

(g) Recreational use of shorelines and beaches;

40 CFR 227.21(h)

(h) Commercial navigation;

40 CFR 227.21(i)

(i) Recreational navigation;

40 CFR 227.21(j)

(j) Actual or anticipated exploitation of living marine resources;

40 CFR 227.21(k)

(k) Actual or anticipated exploitation of non-living resources, including without limitation, sand and gravel places and other mineral deposits, oil and gas exploration and development and offshore marine terminal or other structure development; and

40 CFR 227.21(l)

(l) Scientific research and study.

40 CFR 227.22 Assessment of impact.

The assessment of impact on other uses of the ocean will consider both temporary and long-range effects within the state of the art, but particular emphasis will be placed on any irreversible or irretrievable commitment of resources that would result from the proposed dumping.

Subpart F Special Requirements for Interim Permits Under Section 102 of the Act

40 CFR 227.23 General requirement.

Each interim permit issued under section 102 of the Act will include a requirement for the development and implementation, as soon as practicable, of a plan which requires, at the discretion of the Administrator or Regional Administrator, as the case may be, either:

40 CFR 227.23(a)

(a) Elimination of ocean disposal of the waste, or

40 CFR 227.23(b)

(b) Bringing the waste into compliance with all the criteria for acceptable ocean disposal.

40 CFR 227.24 Contents of environmental assessment.

A plan developed pursuant to this Subpart F must include an environmental assessment of the proposed action, including without limitation:

40 CFR 227.24(a)

(a) Description of the proposed action;

40 CFR 227.24(b)

(b) A thorough review of the actual need for dumping;

40 CFR 227.24(c)

(c) Environmental impact of the proposed action;

40 CFR 227.24(d)

(d) Adverse impacts which cannot be avoided should the proposal be implemented;

40 CFR 227.24(e)

(e) Alternatives to the proposed action;

40 CFR 227.24(f)

(f) Relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity;

40 CFR 227.24(g)

(g) Irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented; and

40 CFR 227.24(h)

(h) A discussion of problems and objections raised by other Federal, State and local agencies and by interested persons in the

review process.

40 CFR 227.25 Contents of plans.

In addition to the environmental assessment required by ^o227.24, a plan developed pursuant to this Subpart F must include a schedule for eliminating ocean dumping or bringing the wastes into compliance with the environmental impact criteria of Subpart B, including without limitation, the following:

40 CFR 227.25(a)

(a) If the waste is treated to the degree necessary to bring it into compliance with the ocean dumping criteria, the applicant should provide a description of the treatment and a scheduled program for treatment and a subsequent analysis of treated material to prove the effectiveness of the process.

40 CFR 227.25(b)

(b) If treatment cannot be effected by post-process techniques the applicant should, determining the offending constituents, examine his raw materials and his total process to determine the origin of the pollutant. If the offending constituents are found in the raw material the applicant should consider a new supplier and provide an analysis of the new material to prove compliance. Raw materials are to include all water used in the process. Water from municipal sources complying with drinking water standards is acceptable. Water from other sources such as private wells should be analyzed for contaminants. Water that has been used in the process should be considered for treatment and recycling as an additional source of process water.

40 CFR 227.25(c)

(c) If offending constituents are a result of the process, the applicant should investigate and describe the source of the constituents. A report of this information will be submitted to EPA and the applicant will then submit a proposal describing possible alternatives to the existing process or processes and level of cost and effectiveness.

40 CFR 227.25(d)

(d) If an acceptable alternative to ocean dumping or additional control technology is required, a schedule and documentation for implementation of the alternative or approved control process shall be submitted and shall include, without limitation:

40 CFR 227.25(d)(1)

(1) Engineering plan;

40 CFR 227.25(d)(2)

(2) Financing approval;

40 CFR 227.25(d)(3)

(3) Starting date for change;

40 CFR 227.25(d)(4)

(4) Completion date;

40 CFR 227.25(d)(5)

(5) Operation starting date.

40 CFR 227.25(e)

(e) If an acceptable alternative does not exist at the time the application is submitted, the applicant will submit an acceptable in-house research program or employ a competent research institution to study the problem. The program of research must be approved by the Administrator or Regional Administrator, as the case may be, before the initiation of the research. The schedule and documentation for implementation of a research program will include, without limitation:

40 CFR 227.25(e)(1)

(1) Approaches;

40 CFR 227.25(e)(2)

(2) Experimental design;

40 CFR 227.25(e)(3)

(3) Starting date;

40 CFR 227.25(e)(4)

(4) Reporting intervals;

40 CFR 227.25(e)(5)

(5) Proposed completion date;

40 CFR 227.25(e)(6)

(6) Date for submission of final report.

40 CFR 227.26 Implementation of plans.

Implementation of each phase of a plan shall be initiated as soon as it is approved by the Administrator or Regional Administrator, as the case may be.

Subpart G Definitions

40 CFR 227.27 Limiting permissible concentration (LPC).

40 CFR 227.27(a)

(a) The limiting permissible concentration of the liquid phase of a material is:

40 CFR 227.27(a)(1)

(1) That concentration of a constituent which, after allowance for initial mixing as provided in ^o227.29, does not exceed applicable marine water quality criteria; or, when there are no applicable marine water quality criteria,

40 CFR 227.27(a)(2)

(2) That concentration of waste or dredged material in the receiving water which, after allowance for initial mixing, as specified in ^o227.29, will not exceed a toxicity threshold defined as 0.01 of a concentration shown to be acutely toxic to appropriate sensitive marine organisms in a bioassay carried out in accordance with approved EPA procedures.

40 CFR 227.27(a)(3)

(3) When there is reasonable scientific evidence on a specific waste material to justify the use of an application factor other than 0.01 as specified in paragraph (a)(2) of this section, such alternative application factor shall be used in calculating the LPC.

40 CFR 227.27(b)

(b) The limiting permissible concentration of the suspended particulate and solid phases of a material means that concentration which will not cause unreasonable acute or chronic toxicity or other sublethal adverse effects based on bioassay results using appropriate sensitive marine organisms in the case of the suspended particulate phase, or appropriate sensitive benthic marine organisms in the case of the solid phase; and which will not cause accumulation of toxic materials in the human food chain. Suspended particulate phase bioaccumulation testing is not required. These bioassays are to be conducted in accordance with procedures approved by EPA, or, in the case of dredged material, approved by EPA and the Corps of Engineers.¹

40 CFR 227.27(c)

(c) "Appropriate sensitive marine organisms" means at least one species each representative of phytoplankton or zooplankton, crustacean or mollusk, and fish species chosen from among the most sensitive species documented in the scientific literature or accepted by EPA as being reliable test organisms to determine the anticipated impact of the wastes on the ecosystem at the disposal site. Bioassays, except on phytoplankton or zooplankton, shall be run for a minimum of 96 hours under temperature, salinity, and dissolved oxygen conditions representing the extremes of environmental stress at the disposal site. Bioassays on phytoplankton or zooplankton may be run for shorter periods of time as appropriate for the organisms tested at the discretion of EPA, or EPA and the Corps of Engineers, as the case may be.

40 CFR 227.27(d)

(d) "Appropriate sensitive benthic marine organisms" means two or more species that together represent filter-feeding, deposit-feeding, and burrowing characteristics. These organisms shall be chosen from among the species that are most sensitive for each type they represent, and that are documented in the scientific literature and accepted by EPA as being reliable test organisms to determine the anticipated impact on the site; provided, however, that until sufficient species are adequately tested and documented, interim guidance on appropriate organisms available for use will be provided by the Administrator, Regional Administrator, or the District Engineer, as the case may be.

¹ An implementation manual is being developed jointly by EPA and the Corps of Engineers, and announcement of the availability of the manual will be published in the Federal Register. Until this manual is available, interim guidance on the appropriate procedures can be obtained from the Marine Protection Branch, WH-548, Environmental Protection Agency, 401 M Street SW, Washington, DC 20460, or the Corps of Engineers, as the case may be.

40 CFR 227.28 Release zone.

The release zone is the area swept out by the locus of points constantly 100 meters from the perimeter of the conveyance engaged in dumping activities, beginning at the first moment in which dumping is scheduled to occur and ending at the last moment in which dumping is scheduled to occur. No release zone shall exceed the total surface area of the dumpsite.

40 CFR 227.29 Initial mixing.

40 CFR 227.29(a)

(a) Initial mixing is defined to be that dispersion or diffusion of liquid, suspended particulate, and solid phases of a waste which occurs within four hours after dumping. The limiting permissible concentration shall not be exceeded beyond the boundaries of the disposal site during initial mixing, and shall not be exceeded at any point in the marine environment after initial mixing. The maximum concentration of the liquid, suspended particulate, and solid phases of a dumped material after initial mixing shall be estimated by one of these methods, in order of preference:

40 CFR 227.29(a)(1)

(1) When field data on the proposed dumping are adequate to predict initial dispersion and diffusion of the waste, these shall be used, if necessary, in conjunction with an appropriate mathematical model acceptable to EPA or the District Engineer, as appropriate.

40 CFR 227.29(a)(2)

(2) When field data on the dispersion and diffusion of a waste of characteristics similar to that proposed for discharge are available, these shall be used in conjunction with an appropriate mathematical model acceptable to EPA or the District Engineer, as appropriate.

40 CFR 227.29(a)(3)

(3) When no field data are available, theoretical oceanic turbulent diffusion relationships may be applied to known characteristics of the waste and the disposal site.

40 CFR 227.29(b)

(b) When no other means of estimation are feasible.

40 CFR 227.29(b)(1)

(1) The liquid and suspended particulate phases of the dumped waste may be assumed to be evenly distributed after four hours over a column of water bounded on the surface by the release zone and extending to the ocean floor, thermocline, or halocline if one exists, or to a depth of 20 meters, whichever is shallower, and

40 CFR 227.29(b)(2)

(2) The solid phase of a dumped waste may be assumed to settle rapidly to the ocean bottom and to be distributed evenly over the ocean bottom in an area equal to that of the release zone as defined in §227.28.

40 CFR 227.29(c)

(c) When there is reasonable scientific evidence to demonstrate that other methods of estimating a reasonable allowance for initial mixing are appropriate for a specific material, such methods may be used with the concurrence of EPA after appropriate scientific review.

40 CFR 227.30 High-level radioactive waste.

High-level radioactive waste means the aqueous waste resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated waste from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels or irradiated fuel from nuclear power reactors.

40 CFR 227.31 Applicable marine water quality criteria.

Applicable marine water quality criteria means the criteria given for marine waters in the EPA publication "Quality Criteria for Water" as published in 1976 and amended by subsequent supplements or additions.

40 CFR 227.32 Liquid, suspended particulate, and solid phases of a material.

40 CFR 227.32(a)

(a) For the purposes of these regulations, the liquid phase of a material, subject to the exclusions of paragraph (b) of this section, is the supernatant remaining after one hour undisturbed settling, after centrifugation and filtration through a 0.45 micron filter. The suspended particulate phase is the supernatant as obtained above prior to centrifugation and filtration. The solid phase includes all material settling to the bottom in one hour. Settling shall be conducted according to procedures approved by EPA.

40 CFR 227.32(b)

(b) For dredged material, other material containing large proportions of insoluble matter, materials which may interact with ocean water to form insoluble matter or new toxic compounds, or materials which may release toxic compounds upon deposition, the Administrator, Regional Administrator, or the District Engineer, as the case may be, may require that the separation of liquid, suspended particulate, and solid phases of the material be performed upon a mixture of the waste with ocean water rather than on the material itself. In such cases the following procedures shall be used:

40 CFR 227.32(b)(1)

(1) For dredged material, the liquid phase is considered to be the centrifuged and 0.45 micron filtered supernatant remaining after one hour undisturbed settling of the mixture resulting from a vigorous 30-minute agitation of one part bottom sediment from the dredging site with four parts water (vol/vol) collected from the dredging site or from the disposal site, as appropriate for the type of dredging operation. The suspended particulate phase is the supernatant as obtained above prior to centrifugation and filtration. The solid phase is considered to be all material settling to the bottom within one hour. Settling shall be conducted by procedures approved by EPA and the Corps of Engineers.

40 CFR 227.32(b)(2)

(2) For other materials, the proportion of ocean water used shall be the minimum amount necessary to produce the anticipated effect (e.g., complete neutralization of an acid or alkaline waste) based on guidance provided by EPA on particular cases, or in accordance with approved EPA procedures. For such materials the liquid phase is the filtered and centrifuged supernatant resulting from the mixture after 30 minutes of vigorous shaking followed by undisturbed settling for one hour. The suspended particulate phase is the supernatant as obtained above prior to centrifugation and filtration. The solid phase is the insoluble material settling to the bottom in that period.