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Ocean Dumping: A Light at the End of the Tunnel

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OCEAN DUMPING: A LIGHT AT THE END OF THE TUNNEL

INTRODUCTION

In November of 1988, Congress launched its latest attack in a seventeen year ongoing battle to end ocean dumping by enacting an amendment to the Marine Protection, Research and Sanctuaries Act (hereinafter MPRSA).

The ocean plays a vital role in the global ecosystem and the importance of maintaining its basic integrity is universally accepted.[1] It was "[p]reviously . . . thought that the . . . immensity of the ocean was such that man could do nothing against such a gigantic force. But the real volume of the ocean is very small . . . compared to the volume of . . . toxic wastes that man can produce."[2] Ocean dumping[3] introduces the most hazardous type of waste into the ocean; at the same time it presents a form of pollution over which society has the greatest control.[4] Much of the materials and chemicals disposed of at sea are highly toxic and not readily assimilated by the ocean.[5] The bulk of such materials is largely a by-product of the

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1. The ocean produces 80% of the world's oxygen, covers 71% of the earth's surface, contains 80% of the world's plant and animal life and provides mankind with an enormous source of food. 1 KINDT, MARINE POLLUTION AND THE LAW OF THE SEA 6 (1986); *see also* Bakalian, *Regulation and Control of United States Ocean Dumping: A Decade of Progress, An Appraisal for the Future*, 8 HARV. ENVTL. L. REV. 193, 196 n.27 (1984) [hereinafter Bakalian].

2. S. REP. NO. 451, 92nd Cong., 2d Sess., *reprinted in* 1972 U.S. CODE CONG. & ADMIN. NEWS 4234, 4237.

3. The term ocean dumping refers to the transporting of waste out to sea by barge or ship and discharging it at a designated site. Bakalian, *supra* note 1, at 198-99.

4. Only 10% of the pollutants entering the ocean result from intentional ocean dumping. 2 KINDT, MARINE POLLUTION AND THE LAW OF THE SEA 1087 [hereinafter KINDT]; *see also* Rogers, *Ocean Dumping*, 7 ENVTL. L. 1 (1976). In addition to intentional ocean dumping, pollutants also enter the ocean through (1) erosion, (2) direct discharge into inland waterways, (3) atmospheric fallout, and (4) leachate from solid waste disposal sites. KINDT, at 1087 & n. 13 (citing Rogers, *supra*, at 1.) Moreover, the MPRSA does not cover oil spills or other accidental releases of hazardous substances, routine discharges from ships such as that incident to propulsion or vessel sewage, and point source pumping of sewage sludge by costal communities through pipes into the sea. These activities are covered by the Federal Water Pollution Control Act. *Rogers*, at 6.

5. Assimilative capacity is a concept used to evaluate the adverse impact of foreign pol-

Industrial Revolution, compounded by rapid increases in population.[6] Dredge spoils,[7] sewage sludge,[8] and industrial wastes[9] are the substances that are currently being disposed of at sea.[10] The potential for damage from this method of disposition is very great, although scientists have not yet fully determined all of its environmental consequences.[11] Moreover, future and undiscovered adverse consequences cannot be avoided after dumping, nor is it feasible to clean up the dumped waste.[12]

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lutants introduced into the marine environment beyond that which can be accommodated. Lahey, *Economic Charges for Environmental Protection: Ocean Dumping Fees*, 11 ECOLOGY L.Q. 305, 308 (1984) [hereinafter Lahey, *Ocean Dumping Fees*]. The ocean has the capacity to render harmless certain amounts of pollutants as a result of its biological, chemical and physical processes. *Id.* For a discussion on the limitation of the assimilative capacity model, *see* KINDT, *supra* note 4, at 1094-96; Lahey, *Ocean Dumping of Sewage Sludge: The Tide Turns From Protection to Management*, 6 HARV. ENVTL. L. REV. 395, 399 (1982) [hereinafter Lahey, *The Tide Turns*].

6. *See* P. BARKLEY & D. SECKLER, Economic Growth and Environmental Decay: The Solution Becomes the Problem 11-19 (1972); P. EHRLICH, *The Population Bomb* (1968); 2 KINDT, *supra* note 4, at 1087; Lumsdaine, *Ocean Dumping Regulation: An Overview*, 5 ECOLOGY L.Q. 753 (1976).

7. Dredge spoils are discarded excess generated from the clearing of harbors and river channels for navigational purposes. *See* 33 U.S.C. § 1402(i)(1988).

8. Sewage sludge is the non-homogeneous mud-like by-product or residue of municipal waterwaste treatment process. *See* 33 U.S.C. § 1414b(K)(6)(1988).

9. Industrial waste is typically the by-product resulting from the manufacture of insecticides, pharmaceutical and other chemicals. The MPRSA defines industrial waste as "any solid, semisolid, or liquid waste generated by a manufacturing or processing plant." 33 U.S.C. § 1412a(b) (1988).

10. Other categories of waste that have been dumped in the ocean in the past include: construction debris, solid waste, explosives and chemical warfare agents and radioactive waste. KINDT, *supra* note 4, at 1088-89; For further discussion regarding the U.S. practices of ocean disposal of radioactive waste and their subsequent phase out, *see id.* at 1102-04.

11. Dredge spoils and sewage sludge contain significant amounts of polychlorinated biphenyls (PCBs) and heavy metals such as: lead, cadmium, zinc and mercury. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 307-08. PCBs are a toxic chemical which accumulates and adversely affects phytoplankton, a vital organism in the marine food chain. *Id.* In addition to initiating the entire food network of the ocean, phytoplankton is also responsible for producing approximately two thirds of the oxygen in the atmosphere. Bakalian, *supra* note 1, at 196 n.27. Heavy metals in low concentrations upset the reproductive function of marine species, and in higher concentrations kill them. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 307-08; Lumsdaine, *Ocean Dumping Regulation: An Overview*, *supra* note 6, at 755-56. Furthermore, the decomposition of dumped sewage sludge depletes oxygen in ocean waters thus resulting in the death of large numbers of marine organisms. KINDT, *supra* note 4, at 1091. In 1970, the Council on Environmental Quality reported the following adverse impact to the environment to the president: "[o]cean-dumped wastes are heavily concentrated and contain materials that have a number of adverse effects. Many are toxic to humans and marine life, deplete oxygen necessary to maintain the marine ecosystem, reduce population of fish and other economic resources, and danger aesthetic value. . . ." 1972 U.S. CODE CONG. & ADMIN. NEWS at 4237.

12. S. REP. NO. 431, 100th Cong., 2d Sess. 6, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5872; *see also* KINDT *supra* note 4, at 1087; Waldichuk, *Control of*

For the foregoing reasons, the need for a comprehensive plan to achieve an end to hazardous ocean dumping is not seriously disputed. The policy of the United States to expeditiously bring about an end to ocean dumping was first announced in the Marine Protection, Research and Sanctuaries Act of 1972.[13] The MPRSA, also known as the Ocean Dumping Act,[14] regulates the who, what and how of ocean dumping. The legislation authorizes those who may dump through a system of permits,[15] regulates what types of waste may or may not be deposited into the ocean and monitors how such waste is to be transported.

The 1988 amendments to the MPRSA set a December 31, 1991 deadline to cease ocean dumping and impose civil penalties on those who continue to dump after the deadline.[16] The penalties are designed to exceed the costs of developing land-based alternatives to ocean dumping.[17] In addition, the amendment requires present polluters to enter into compliance agreements which call for annual reports on the progress being made in implementing alternatives to ocean dumping.[18]

This note in Part I will provide a broad overview of the legislative and judicial landscapes since the 1972 enactment of the MPRSA. This broad overview tracks the progress and provides background to the 1988 amendment. Part II will be devoted to the evaluation of the effectiveness of the present permit system and will suggest alternatives.

I. THE MPRSA: FIRST ROUND

A. *The Marine Protection, Research and Sanctuaries Act*

This landmark legislation was enacted in 1972 due to congressional recognition of the dangers to both human health and the

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Marine Pollution: An Essay Review, 4 OCEAN DEV. & INT'L L.J. 269, 282 (1977).

13. Pub. L. No. 92-532, 86 Stat. (1972) 1052 (codified as amended at 33 U.S.C. §§ 1401-1445 (effective Apr 23, 1973)). Pollution of ocean waters have been denounced as early as 1675: "Governor Edmund Andros of New York decreed that all persons were forbidden 'to cast any dung, dirt or refuse of ye city, or anything to fill up ye harbor or among ye neighbors or neighboring shores, under penalty of forty schillings.' "S. REP. NO. 451, 92nd Cong., 2d Sess., *reprinted in* 1972 U.S. CODE CONG. & ADMIN. NEWS 4234, 4236.

14. Pub. L. No. 100-688, Title 1, § 1001, 102 Stat. 4139 (1988).

15. *See infra* notes 38-66 and accompanying text.

16. 33 U.S.C. § 1414b (1988).

17. S. REP. NO. 431, 100th Cong., 2d Sess. 8, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5875.

18. 33 U.S.C. § 1414b(c) (1988).

marine environment posed by ocean dumping of toxic waste.[19] Heightened environmental awareness and activism was prevalent in the United States during the 1960s.[20] However, with regard to the ocean, public attention was misdirected at visible and aesthetic pollution consequences, such as discoloration, foam, litter, and oil spills, while the more harmful long-term problems, such as toxic bioaccumulation in marine organisms, were largely ignored.[21] In April 1970, President Nixon instructed the Council on Environmental Quality (hereinafter CEQ) to conduct a comprehensive investigation on ocean dumping.[22] The results of the CEQ investigation established that the existing situation was dismal. The report, entitled *Ocean Dumping: A National Policy*, indicated that ocean dumping practices then prevailing had severely impaired the marine environment and posed risks to human health.[23] "Moreover, the CEQ predicted that ocean dumping, particularly of sewage sludge, would increase rapidly because of growth of coastal populations, improvements in waste water treatment and escalating costs of land-based disposal techniques."[24] The report emphasized the need for development of international policy and control of ocean dumping as well as strong domestic law.[25] In October, 1970 the CEQ report was forwarded to Congress with President Nixon's endorsement of the Council's recommendation for stringent legislation.[26] Public concern

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19. Prior to 1973 there was virtually no governmental control over ocean dumping. Rogers, *supra* note 4, at 3. (discussion of early legislation impacting on ocean dumping); *see also* KINDT, *supra* note 4, at 1109-10. This lack of regulatory structure and control over ocean dumping and the fact that state autonomy only extends to the three mile territorial sea provided the impetus in part for federal action. Lahey, *The Tide Turns*, *supra* note 5, at 399.

20. KINDT, *supra* note 4, at 1110; Lahey, *Ocean Dumping Fees*, *supra* note 5, at 309.

21. KINDT, *supra* note 4, at 1097. For information regarding the adverse effect of toxic bioaccumulation in marine organisms, *see supra* note 11.

22. Lahey, *The Tide Turns*, *supra* note 5, at 398. "1970 marked the beginning of what President Nixon declared to be the 'environmental decade.'" Lahey, *Ocean Dumping Fees*, *supra* note 5, at 309 (citation omitted).

23. Lahey, *The Tide Turns*, *supra* note 5, at 399; *see also supra* note 11.

24. *Id.* The CEQ assessment with regard to the future dumping of sewage sludge was greatly underestimated. The report predicted that by 1980 New York City would dump approximately 200,000 tons of sewage sludge; in reality New York City dumped about 3 million tons in 1979. *Id.* at 399 n.39. (citing the U.S. ENVTL. PROTECTION AGENCY, ANNUAL REPORT TO CONGRESS (Jan.-Dec. 1979) ON ADMINISTRATION OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT 7 (1980)).

25. Bakalian, *supra* note 1, at 194.

26. Lahey, *The Tide Turns*, *supra* note 5, at 398. Although the CEQ conceded that its findings could not be confirmed with scientific certainty, it reasoned that caution mandated the adoption of strict regulatory control. *Id.* at 399. While Congress was formulating domestic policy, the Administration was pushing for the development of international regulation of

was aroused by the CEQ report, and consequently was instrumental in the enactment of the MPRSA.[27]

The MPRSA is composed of three titles: Title I - Ocean Dumping; Title II - Comprehensive Research on Ocean Dumping; Title III - Marine Sanctuaries.[28] Title I[29] regulates the type of waste that may or may not be dumped into the ocean and sets out a permit program to be administered primarily by the United States Environmental Protection Agency [EPA].[30] The EPA is empowered to establish regulations to control ocean dumping, to designate ocean dump sites and to formulate criteria for evaluating permit applications.[31] Other agencies that share responsibilities with the EPA are the Army Corp of Engineers, which is responsible for regulating dumping of dredge spoils;[32] the National Oceanic and Atmospheric

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ocean dumping. *See infra* notes 91-101 and accompanying text.

27. *See* New York v. EPA, 543 F. Supp. 1084, 1088 (1981). In addition, a 1970 episode involving the dumping of nerve gas by the United States Army off the coast of Florida also fueled public concern which prompted Congressional action. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 309.

28. Title III, which provides for the establishment of Marine Sanctuaries, is not within the scope of this article.

29. As originally enacted, Title I imposed an outright ban on the transporting, for the purpose of dumping, "any radiological, chemical, or biological warfare agent [and] any high level radioactive waste." 33 U.S.C. § 1411(b) (1972), *amended by* 33 U.S.C. § 1411(b) (1974). Although, the MPRSA set no deadline for the termination of ocean dumping, Congress expected such dumping to be reduced or eliminated fairly expeditiously. Lahey, *The Tide Turns*, *supra* note 5, at 402.

30. 33 U.S.C. § 1412 (1986). The EPA is an agency in the Executive Branch that was created in 1970 pursuant to Reorganization Plan No. 3 of 1970. 5 U.S.C. § 903 (1980). For further information on the EPA's early implementation of the MPRSA, *see* Rogers, *supra* note 4, at 7-11.

31. The EPA criteria for evaluating applications for ocean dumping permits is set out in 40 C.F.R. §§ 220-229. In essence, the factors considered by the EPA are the following: the applicant's demonstrated need to dump, the impact to the environment, and aesthetic, recreational and economic values.

32. The EPA, the lead agency with respect to Title I, has veto power over all permits issued by the Army Corp of Engineers. *See* 33 U.S.C. § 1413(c) (1988). In addition, the Corp follows the criteria promulgated by the EPA in evaluating applications for permits. *Id.* at § 1413(b). The Army Corp of Engineers have been sharply criticized for their lax attitude towards ocean dumping of dredge spoils. The National Wildlife Federation, an environmental group, complained to Congress in 1974 that the Corp's program promoted the dumping of dredge spoils instead of controlling it. Administrative inefficiency is illustrated by the extended period of time it took the Corp to promulgate and implement regulations, the inter-agency failure to coordinate enforcement efforts, and the time consuming process of its permit program. Furthermore, a New York District Court found fault in the Corp's permit process in that it failed to consider adequately the environmental effect of dredge spoil dumping. *See* Nat'l Wildlife Fed'n v. Benn, 491 F. Supp. 1234 (1979). This apathy is attributed to the agency's conflict of interest. The agency is both the regulatory authority and the major producer and dumper of dredge spoils. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 312-13;

Administration, which is delegated the duty of monitoring the dump site environment; and the United States Coast Guard, which is responsible for surveillance of dumping activities and regulation relating to transportation.[33]

Title II provides for a comprehensive research scheme to be conducted by the Secretary of Commerce in conjunction with the Coast Guard and the EPA to determine the effects of ocean dumping.[34] One of the major criticisms of the research program is that there is no management overview or coordination between the agencies involved.[35]

The Secretary of Commerce is responsible for initiating programs and conducting research on a broad spectrum of topics such as the possible long-range effects of pollution, over fishing, man-induced changes of ocean ecosystems, and the effect of petroleum spills.[36] The research programs are to include the development of a system which measures and classifies the degradation of the marine environment and assesses the capacity of the ocean to receive pollutants without degradation.[37] Furthermore, the Secretary of Commerce is responsible for ongoing programs which monitor the condition of the marine environment and the development of progressive scientific disposal techniques that minimize ocean degradation.[38]

B. *Permit Program*

Ocean dumping is prohibited except as authorized by permit. Title I of the MPRSA delegates the responsibility for the development and administration of the permit program to the EPA. The EPA implementing regulations created several categories of ocean dumping permits. Categories of permits include: general, special, in-

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KINDT, *supra* note 4, at 1124.

33. S. REP. NO. 431, 100th Cong., 2d Sess. 2, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5868.

34. 33 U.S.C. § 1441 (1976).

35. H.R. REP. NO. 325, 95th Cong., 1st Sess. 4, *reprinted in* 1977 U.S. CODE CONG. & ADMIN. NEWS 3262, 3277; *Marine Monitoring Improvements Needed, National Research Council Says in Report*, 20 ENV'T REP. (BNA) No. 48, at 1915 (Mar. 30, 1990). The report concluded that insufficient marine monitoring can be attributed in part to poor studies design, limited scientific knowledge, and the failure to utilize collected information to assist in the development of policies or specific control strategies as a result of the method in which it is presented.

36. 33 U.S.C. § 1442(a)(1) (1988).

37. *Id.* at § 1442(a)(2). *See generally supra* note 5 (discussing the assimilative capacity model).

38. *Id.* at § 1442(a)(2).

terim, emergency and research. General permits may be issued, with no specific expiration date, for dumping of small quantities of materials that are harmless to the ocean environment.[39] Special permits may be available for dumping of certain materials Congress had prohibited,[40] but only in harmless quantities.[41] Special permits are valid for a duration of up to three years and have a fixed expiration date.[42] The applicant requesting a special permit is required to demonstrate that materials it proposes to dump pose no substantial harm to the ocean environment.[43] The EPA declared that permits for dumping of prohibited materials in excess of the permissible trace concentrations would not be issued except in limited situations through the use of interim permits.[44] Interim permits are granted at the discretion of the EPA and based on such factors as: (1) the degree of adverse impact to the environment, (2) the need for ocean dumping, (3) the availability of land based alternatives, and (4) the effect on the ocean.[45] Holders of interim permits are required to develop a schedule to phase out their ocean dumping activities or to comply with the prescribed criteria.[46] Emergency permits may be issued to dump materials which pose an unacceptable risk to human health and admits of no other feasible solution.[47] However, prior consultation with the Department of State is required before an emergency permit for

39. 38 Fed. Reg. 8,726, 40 C.F.R. § 220.3(a) (1973).

40. Subject to one exception, Congress prohibited the dumping of wastes containing more than trace concentrations of the following materials: organohalogen compounds, mercury and cadmium, and their compounds, crude oil and various other petroleum products. 38 Fed. Reg. 12,872-73, 40 C.F.R. § 227.22(a)-(d) (1973). Moreover, materials that Congress forbid, under any circumstances, to be dumped include: high-level radioactive wastes, substances produced for radiological, chemical or biological warfare and persistent inert synthetic or natural materials which may float or remain in suspension in the ocean. 38 Fed. Reg. 12,872, 40 C.F.R. § 227.21 (1973).

41. 38 Fed. Reg. 12,873, 40 C.F.R. § 227.22(e) (1973). The exception in paragraph (e) authorizes the dumping of prohibited materials "which are rapidly rendered harmless by physical, chemical, or biological processes in the sea; provided they will not, if dumped, make edible marine organisms unpalatable; or will not, if dumped, endanger human health or that of domestic animals, fish, shellfish and wildlife." *Id.*

42. 38 Fed. Reg. 28,613, 40 C.F.R. § 220.3(b)(1974). As originally enacted, special permits were only valid for one year; however, this was extended to three years in 1974. *Compare id. with* 38 Fed. Reg. 8,726, 40 C.F.R. § 220.3(b) (1973).

43. 38 Fed. Reg. 12,873; 40 C.F.R. § 227.30 (1973).

44. 38 Fed. Reg. 12,873-74, 40 C.F.R. § 227.42 (1973).

45. 38 Fed. Reg. 12,873-74, 40 C.F.R. § 227.42 (1973).

46. Anderson, *A Return to Ocean Dumping?* 14 NAT. RESOURCES L. NEWSL. 3 (July 1982).

47. 38 Fed. Reg. 12,873, 40 C.F.R. § 227.41 (1973). "Emergency refers to situations requiring action with a marked degree of urgency, but is not limited in its application to circumstances requiring immediate action." *Id.*

dumping of prohibited materials can be issued.[48] Research permits may be issued to dump any materials when the scientific advantages outweigh the potential environmental damage.[49]

The MPRSA lists nine factors the EPA must consider in promulgating criteria for evaluating permit applications.[50] The EPA'S first set of regulations, issued in 1973, reflected a determination to end all ocean dumping of materials which could conceivably cause injury to the environment.[51] The 1973 regulations essentially disregarded the nine extenuating factors listed in the MPRSA.[52] Rather, the assessment of dumping applications were based on the type of waste proposed to be dumped; more specifically it relied on the mere presence of certain toxic materials.[53]

The reason the EPA cautiously decided to ban practically all

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48. *Id.*

49. 40 C.F.R. § 220.3(e) (1983). Research permits were not initially provided for in the EPA's first set of regulations.

50. *See* 33 U.S.C. § 1412(A)-(H) (1978). The factors considered by the Administrator are:

(A) The need for the proposed dumping.

(B) The effect of such dumping on human health and welfare, including economic, aesthetics, and recreational values.

(C) The effect of such dumping on fisheries resources, plankton, fish, shellfish, wildlife, shore lines and beaches.

(D) The effect of such dumping on marine ecosystems, particularly with respect to-

(i) the transfer, concentration, and dispersion of such material and its byproducts through biological, physical, and chemical processes,

(ii) potential changes in marine ecosystem diversity, productivity, and stability, and

(iii) species and community population dynamics.

(E) The persistence and permanence of the effects of the dumping.

(F) The effect of dumping particular volumes and concentrations of such materials.

(G) Appropriate locations and methods of disposal or recycling, including land-based alternatives and the probable impact of requiring use of such alternate locations or methods upon consideration affecting the public interest.

(H) The effect on alternate uses of oceans, such as scientific study, fishing, and other living resource exploitation, and nonliving resource exploitation.

(I) In designating recommended sites, the Administrator shall utilize wherever feasible locations beyond the edge of the Continental Shelf.

51. KINDT, *supra* note 4, at 1115. The phase-out of the City of Philadelphia's ocean dumping activities off the coast of Maryland exemplifies the EPA's strict enforcement approach during the mid-70s. *See* Maryland v. Train, 415 F. Supp. 116 (D.Md. 1976); Lahey, *The Tide Turns*, *supra* note 5, at 406-07. The EPA's strict construction of the MPRSA reflected Congress' intent to force the research and development of environmentally acceptable and feasible land-based disposal alternatives. Bakalian, *supra* note 1, at 213.

52. KINDT, *supra* note 4, at 1115.

53. *Id.* at 1115-16.

ocean dumping which could possibly cause harm was attributed to the lack of scientific knowledge at the time regarding the adverse environmental consequences of ocean disposal practices.[54] The EPA's regulation of sewage sludge dumping was criticized, in particular, as being too stringent.[55] The harshness of the regulatory scheme was apparent when the limited alternative disposal options of sewage sludge was considered. In 1976, the EPA revised its regulations adopting a more practical approach.[56] The revised criteria for assessing dumping applications focused on the proposed material's effect on the ocean environment, as measured by bioassay tests.[57]

As under the original regulations, applicants who proposed to dump materials that did not meet the environmental impact criteria but could demonstrate a need to dump or lack of alternative were granted interim permits valid for one year. However, the revised regulations prohibited all dumping in violation of the criteria after December 31, 1981. The deadline was in response, in part, to public criticism that interim permits and renewals thereof, were routinely granted by the EPA on a mere showing of good faith effort to comply.[58] Consequently, Congress amended the MPRSA in 1977 to add statutory weight to the December 31, 1981 deadline.[59] The amendment prohibited the issuance or renewal of any ocean dumping permit that would allow dumping of sewage sludge after December 31, 1981.[60] A judicial commentator noted "[t]he need to amend the statute in this manner underscores Congressional dissatisfaction with the EPA's progress in phasing out ocean dumping."[61]

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54. *Id.* at 1115.

55. *Id.*

56. *Id.* at 1116. The revised regulations were issued in final form in January of 1977. *See* Final Revision of Regulations and Criteria for Ocean Dumping, 42 Fed. Reg. 2462, 40 C.F.R. §§ 220-229 (1977).

57. KINDT *supra* note 4, at 1116; *see also* 40 C.F.R. § 227.4 (1983). Bioassays are laboratory experiments which measure the response of organisms when exposed to various concentrations of pollutants during a designated period of time. Lahey, *The Tide Turns*, *supra* note 5, at 408 n. 122.

58. KINDT *supra* note 4, at 1116; *see also* Lahey, *The Tide Turns*, *supra* note 5, at 408 n.127.

59. Act of Nov. 4, 1977, Pub. L. No. 95-153, § 4, 91 Stat. 1255 (codified at 33 U.S.C. § 1412(a) (Supp. III 1979)).

60. 33 U.S.C. § 1412a. The 1977 amendment defined sewage sludge as material which "may unreasonably degrade or endanger human health, welfare, amenities, or the marine environment, ecological systems or economic potentialities. . . ." 33 U.S.C. § 1412a(d)(1) (Supp. III 1979). This definition would later serve as a loophole to circumvent the December 31, 1981 deadline. *See infra* notes 78-84 and accompanying text.

61. Bergen County Util. v. EPA, 507 F. Supp. 780, 783-84 (D.N.J. 1981).

Congress amended the MPRSA for several reasons. First, public attention was sharply attuned to the ocean pollution issue as a result of two highly publicized incidents that occurred in the summer of 1976.[62] Specifically, many Long Island beaches were closed that summer because of the substantial health risks posed by waste washing up on the shore.[63] In addition, a large fish kill that stretched from Long Island to Delaware was attributed to ocean dumping.[64] Second, Congress was losing confidence in the EPA's ability to phase-out ocean dumping. In particular, Congress was dissatisfied with the EPA's practice of granting interim permits for dumping of waste which did not meet its own criteria.[65] Lastly, Congress wanted to send a clear message to municipalities that relied on ocean disposal of its sewage sludge that December 31, 1981 was the final deadline. "Congress believed that a rigid deadline on dumping of sewage sludge would force municipalities to develop acceptable land-based alternatives."[66]

C. *Progress in Reducing Ocean Dumping Prior to the 1988 Amendment to the MPRSA*

Since the 1973 promulgation of EPA regulations, the volume of industrial waste disposed of in the ocean has been reduced significantly.[67] However, many factors unrelated to the EPA's effort contributed to this reduction. Many of the industries that relied on the ocean for waste disposal cut back operations or went out of business as a result of economic conditions.[68]

Ocean disposal of dredge spoils represents by far the largest single volume of dumped substances.[69] However, only 1% to 10% of all dredge spoils are toxic; so that it presents less of a threat to the

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62. Lahey, *The Tide Turns*, *supra* note 5, at 409.

63. *Id.*

64. *Id.*

65. *Id.*; *see also* H.R. REP. No. 325, 95th Cong., 1st Sess. 3, *reprinted in* 1977 U.S. CODE CONG. & ADMIN. NEWS 3262, 3264.

66. Lahey, *The Tide Turns*, *supra* note 5, at 409.

67. *See* Lahey, *Ocean Dumping Fees*, *supra* note 5, at 311; Bakalian, *supra* note 1, at 203; *see also* [Current Developments] 19 ENV'T REP. (BNA) No. 30, at 1484, 1485 (Nov. 25, 1988). Allied Signal, Inc., who has been dumping pursuant to EPA permit, for about 20 years, was the only company dumping industrial waste into the ocean in 1988. As a result of social and political pressures, Allied ceased its ocean dumping activities in 1988. *See* [Current Developments] 20 ENV'T REP. 144 (May 19, 1989).

68. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 311.

69. Bakalian, *supra* note 1, at 204. According to the 1970 CEQ report, dredge spoils constitute 80% of the total volume of dumped waste. KINDT, *supra* note 4, at 1089.

marine environment, on a pound for pound basis in comparison to industrial waste and sewage sludge.[70] But even non-toxic dredge spoils can cause damage by burying marine organisms, preventing light penetration and increasing levels of floating sediments.[71] The toxicity of dredge spoils varies with the degree of contamination of the excavation source.[72] Therefore, dispersal of dredging waste from highly polluted rivers and harbors, which is the typical case, contributes significantly to the degradation of the ocean.[73]

It has been the regulation of sewage sludge that has remained at the center of the ocean dumping controversy. Since the promulgation of the MPRSA, and as a result of EPA pressure, over 150 municipalities have phased out their ocean dumping activities and shifted to land disposal of sludge.[74] Although numerous, these municipalities account for a very small percentage of the total volume of sludge dumped.[75] The "EPA's inability to control ocean dumping of sewage sludge resulted from the agency's failure to phase out large dumpers such as New York City."[76]

D. *Judicial Interpretation: City of New York v. EPA*[77]

New York City is one of the largest ocean dumpers of sewage sludge. The City dumps approximately 260 dry tons on a daily basis.[78] Prior to the December 31, 1981 deadline, the City was authorized by the EPA under an interim permit to dump in an area known as the New York Bight Apex.[79] The City's sludge has consistently

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70. KINDT, *supra* note 4, at 1089.

71. Bakalian, *supra* note 1, at 204; Lumsdaine, *Ocean Dumping Regulation: An Overview*, 5 ECOLOGY L.Q. 753, 755.

72. Bakalian, *supra* note 1, at 204. New York Harbor dredge spoils, for example, contain an abundance of contaminants in highly concentrated form. *Id.*

73. *Id.* at 205.

74. S. REP. NO. 431, 100th Cong., 2d Sess. 2, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5869.

75. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 311.

76. *Id.*

77. 543 F.Supp. 1084 (S.D.N.Y. 1981).

78. *Id.* at 1085.

79. The New York Bight Apex is a dump site located, in the Atlantic Ocean, 12 miles off the New York-New Jersey coastline. *See* 33 U.S.C. § 1414(a) (1988). Dumping of sewage sludge by New York and New Jersey municipalities has continued in this area since 1924. *See* National Wildlife Fed'n v. Gorsuch, 744 F.2d 963, 965 (3d Cir. 1984). The EPA closed the New York Bight dump site on December 31, 1987, as a result of heavy degradation and moved the dumping to a new site, known as the 106 mile site. S. REP. NO. 431, 100th Cong., 2d Sess. 4, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5869; *see infra* note 112.

failed the environmental impact criteria for a special permit since 1973 because of its high concentrations of heavy metals.[80] The City had developed a short-term alternative land disposal plan to ocean dumping. The plan consisted of composting the sewage sludge and distributing it at various landsites throughout the City. Due to the shortage of landsites, this method of disposal could only be employed for about eight years. In 1980, the City applied for a renewal of its permit, submitting evidence that the land disposal scheme posed a greater threat to the environment than continued ocean dumping. The EPA denied the City's request and refused to consider the evidence contending that the 1977 amendment prohibits all ocean dumping after the December 31, 1981 deadline. The City brought suit claiming the EPA was required by the MPRSA to consider its evidence; arguing that Congress had banned only dumping which "unreasonably degrades" the ocean environment.[81] The issue in *City of New York v. EPA* was whether the MPRSA required the EPA to apply a balancing test and consider the City's evidence or whether the EPA could deny an ocean dumping permit based on its regulatory criteria.

The district court granted summary judgment in favor of the City and ordered the EPA to revise its regulations finding that the impact criteria used by the EPA to evaluate permits were arbitrary and capricious. New York City was allowed to continue dumping.[82] The EPA did not appeal the decision.[83]

The EPA's failure to appeal *City of New York* is intriguing in view of the decision reached six months prior in *Bergen County Utilities Authority v. EPA*.[84] In *Bergen County*, the court granted summary judgment in favor of the EPA holding that the agency's denial of Bergen County's interim permit was neither arbitrary nor capri-

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80. Bakalian, *supra* note 1, at 220 n.227.

81. The EPA argued that the City was estopped from challenging the regulation because it was aware of the 1981 deadline since 1977 and had accepted six million dollars in federal funds to achieve compliance. The City countered that the EPA had full knowledge of the City's opposition to its interpretation of the MPRSA. Furthermore, suit was never filed earlier because the City genuinely believed it could comply with the 1981 deadline. *City of New York*, 543 F. Supp. at 1087-88.

82. *Id.* at 1115.

83. The EPA Administrator Anne Gorsuch provided three reasons for not appealing the decision: (1) the EPA was not ordered to act contrary to congressional intent, (2) the anticipation of losing the appeal and (3) the agency's belief that the holding was reasonable. Lahey, *The Tide Turns*, *supra* note 5, at 422; *see also* [Current Developments] 12 ENV'T REP. (BNA) 1266 (Jan. 29, 1982).

84. 507 F. Supp. 780 (D.N.J. 1981), *aff'd*, No. 81-1716 (3d Cir. Dec. 1, 1981).

cious. The court applied a narrow standard of review stating that it "must not substitute its judgment for that of an agency authorized to exercise rulemaking functions in an area where the agency possesses a unique expertise."[85] Moreover, the Third Circuit affirmed the *Bergen County* decision approximately three months after the district court rendered its decision in *City of New York*.[86]

Commentators have noted that the "EPA's failure to appeal *City of New York* signaled an end to the Agency's earlier efforts to halt all ocean dumping of sewage sludge."[87] This turn of events opened the door to increased interest in ocean dumping. Cities and municipalities that had never dumped before or had previously phased out its ocean dumping activities were now exploring the possibility of obtaining permits.[88] However, the increased interest never materialized into new sources, only those presently dumping pursuant to EPA permit continued. Moreover, public discontentment with government expenditures coupled with high inflation hindered the movement to clean up the environment.[89]

E. *The London Convention and U.S. Treaty*

In 1972, ninety-two countries, including the United States, participated in an international convention held in London, England entitled the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (hereinafter the London Convention).[90] The London Convention resulted in the development of the first global consensus on ocean dumping enunciating a policy to prevent ocean pollution.[91] Although there were previous international conventions which impacted upon ocean dumping,[92] the London Convention represented

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85. *Id.* at 784.

86. The decision in *City of New York* was rendered August 26, 1981 and the Third Circuit affirmed *Bergen County* on December 1, 1981.

87. Zeppetello, *National and International Regulation of Ocean Dumping: The Mandate to Terminate Marine Disposal of Contaminated Sewage Sludge*, 12 ECOLOGY L.Q. 619, 623 (1985). The change in attitude was also a result of the Reagan Administration's policy towards ocean disposal, a view that the ocean was a valid dumping option. Lahey, *The Tide Turns*, *supra* note 5, at 422; *see also* [Current Developments] 12 ENV'T REP. (BNA) 1272 (Jan. 29, 1982).

88. Swanson & Devine, *The Pendulum Swings Again: Ocean Dumping Policy*, 24 ENV'T 14, 17 (June 1982).

89. KINDT, *supra* note 4, at 1117.

90. *See generally* Leitzell, *The Ocean Dumping Convention - A Hopeful Beginning*, 10 SAN DIEGO L. REV. 502 (1973); Bakalian, *supra* note 1, at 226-35; Zeppetello, *supra* note 88, at 624-48; Rogers, *supra* note 4, at 6-7.

91. KINDT, *supra* note 4, at 1127.

92. The United Nations Conference on the Law of The Sea in 1958, the United Nations

the most comprehensive international agreement concerning marine pollution.[93] The United States became a signatory to the international treaty[94] and in 1974 Congress amended the MPRSA to incorporate features of the London Convention.[95] The key provisions of the Convention are set out in three Annexes. Annex I prohibits ocean dumping of specific substances, commonly referred to as the "blacklist"[96] except when these substances are contained in other materials as trace contaminants.[97] Annex II allows the dumping of "greylist"[98] materials on a permit basis only, provided that certain precautions are observed.[99] Annex III establishes factors that must be considered by signatory parties in promulgating criteria for dump sites locations, waste composition and amount of discharge. Each nation is responsible for the policing of its own dumping activities or

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Conference on the Human Environment, and the Intergovernment Maritime Consultative Organization Conference on Marine Pollution are a few of the early international conventions that briefly addressed ocean pollution issues. KINDT, *supra* note 4, at 1125-27.

93. *Id.* at 1127.

94. Prevention of Marine Pollution, opened for signature, Dec. 29, 1972, 26 U.S.T. 2403, T.I.A.S. No. 8165 (The Convention entered into force for the United States on August 30, 1975).

95. H.R. REP. NO. 568, 93rd Cong., 1st Sess. 6 (1973). Support exists that the primary purpose of the MPRSA was to implement the London Convention which according to Article XIX was not to become binding international law until thirty days after the receipt of the fifteenth instrument of ratification. *See* KINDT, *supra* note 4, at 1097; Rogers, *supra* note 4, at 7. This occurred on July 31, 1975. *Id.*

96. Blacklist substances, listed in Annex I of the Convention, consist of the following: organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, persistent plastics and other persistent synthetic materials, crude oil, fuel oil, heavy diesel oil, lubricating oils, hydraulic fluids, high-level radio active wastes, and materials produced for biological and chemical warfare. KINDT, *supra* note 4, at 1127; 26 U.S.T. at 2465. Annex I specifically excludes from its provisions sewage sludge and dredged spoils containing any of the matters referred to above. 26 U.S.T. at 2465, para 9.

97. The trace contaminant exception has been criticized as undercutting the spirit of Annex I. *See* KINDT, *supra* note 4, at 1099. Although "trace contaminants" are not defined anywhere in the convention, marine scientists agree that the phrase refers to concentrations which are equivalent to levels normally found in the ocean. The problem is exposed when this definition is applied to man-made contaminants such as polychlorinated biphenyls (PCBs) and pesticides which are contained in sewage sludge and dredge spoils and normally found in commercial harbors but exceed by far the contaminants which naturally occur or found in ocean waters. Rogers, *supra* note 4, at 11-14.

98. Greylist substances are set out in Annex II and consist of materials containing significant amounts of arsenic, lead copper, zinc, organosilican compounds, cyanides fluorides and pesticides and their by-products not covered in Annex I; large quantities of acids and alkalis containing any of the preceding substances in addition to beryllium, chromium nickel and vanadium; scrap metal and other bulky wastes and radio-active waste not covered in Annex I. *See supra* note 94.

99. Zeppetello, *supra* note 87, at 620.

that conducted by its citizens.[100] Furthermore, each nation is responsible for the supervision of dumping activities off its shorelines.

In *National Wildlife Federation v. Gorsuch*[101] the court sidestepped the issue of whether continued ocean dumping of sewage sludge violated the London Convention. *Gorsuch* involved the collateral attack on a consent decree by the plaintiff, National Wildlife Federation (hereinafter NWF). Six New Jersey sewage authorities[102] had filed suit against the EPA in the District Court of New Jersey challenging denial of interim permits and seeking similar relief as was sought by the City of New York, namely to continue dumping beyond the December 31, 1981 deadline.[103] The New York action terminated first and resulted in a domino effect. The New Jersey action was ended when the parties entered into a consent decree tracking the provisions of the order entered in New York. The NWF had originally filed an amicus curiae brief in the New Jersey action supporting the EPA's interpretation of the MPRSA.[104] When it appeared that the EPA would enter into consent orders in accordance with the *City of New York* decision, the NWF sought to intervene. The NWF's motion to intervene was denied due to untimeliness on the same day that the consent orders were signed by the district court judge.[105] After denial of their motion for intervention in the New Jersey action, the NWF filed suit seeking declaratory and injunctive relief based on the London Convention.[106] Plaintiffs asserted that the international treaty prohibited continued dumping in addition to alleged violations of the MPRSA. On the motions of the EPA, the six sewage authorities and the New Jersey Department of Environmental Protection the District Court dismissed the complaint based on the finding that the NWF's suit was an improper

100. The London Convention's lack of any international enforcement mechanism to prevent violations of its provisions has been widely viewed as its main weakness because it leaves the door open for a country to ignore illegal dumping activities or in the extreme to sanction such dumping to promote self-seeking industrialization. KINDT, *supra* note 4, at 1120.

101. 744 F.2d 963 (1984).

102. The Passaic Valley Sewerage Commission, the Bergen County Utilities Authority, the Linden Roselle Sewerage Authority, the Joint Meeting of Essex and Union Counties, Middlesex County Utilities Authority and the Rahway Valley Sewerage Authority.

103. *Gorsuch*, 744 F.2d at 965.

104. National Wildlife Fed'n v. Ruckelshaus, 21 Env't Rep. Cas. (BNA) 1776, 77 (1983), *enforced sub nom.*, 744 F.2d 963 (3d Cir. 1984).

105. *Gorsuch*, 744 F.2d at 966.

106. *Id.* at 966. The NWF assert that they did not appeal the denial to intervene in the New Jersey action because they relied on comments made from the bench by Judge Sarokin in which he suggested that the NWF could bring an independent action alleging violation of the London Convention. *Id.*

collateral attack.[107] The merits of whether continued ocean dumping violates the London Convention was never reached.

II. THE 1988 AMENDMENTS

A. *Legislative Development: Amendments to the MPRSA*

Senators Lautenberg, Bradley, Chafee, Biden and Roth commanded the latest attack on ocean dumping.[108] On February 2, 1988, they introduced the Ocean Dumping Reform Act, S. 2030, which amends the MPRSA. The bill was enacted into law on November 18, 1988[109] amidst EPA resistance to responsibilities mandated by the amendment.[110] The enacted amendments, referred to as the Ocean Dumping Ban Act of 1988,[111] establishes a December 31, 1991 deadline for dumping of sewage sludge and industrial waste at the 106 mile site.[112] Furthermore, the statutory definitions of the term "sewage sludge" and "industrial waste" have been amended to delete the reference to unreasonable degradation.[113] The subsequent

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107. National Wildlife Fed'n v. Ruckelshaus, 21 Env't Rep. Cas. (BNA) 1776 (1983) *enforced sub nom.*, 744 F.2d 963 (3d Cir. 1984).

108. *See* S. REP. NO. 431, 100th Cong., 2d Sess. 4, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5870. Members of Congress expressed outrage and frustration with regard for the need to amend the statute for a third time.

> This legislation should never have been added. Over a decade ago, Congress thought it had banned ocean dumping. Unfortunately, New York City and other dumpers took the Environmental Protection Agency to court as the deadline approached and won. The case not only eliminated the 1981 deadline, it also effectively ended any chance that ocean dumping would come to a halt at any time without a new law.

134 CONG. REC. S16,689 (daily ed. Oct. 18, 1988)(statement of Senator Biden), *reprinted in* United States v. County of Nassau, 733 F. Supp. 563, 569 (E.D.N.Y. 1990). Again, blame was directed at the EPA for the failure to enforce the Congressional mandate. *See supra* text accompanying notes 58-61. "It's clear that we cannot count on the EPA which has earned the name the Environmental Procrastination Agency. We need a firm deadline, in the law to end the ocean dumping of sewage sludge and industrial waste. Only then, will alternatives be put in place. Only then, will the dumping stop." 134 CONG. REC. S16685 (daily ed. Oct. 18, 1988)(statement of Senator Lautenberg), *reprinted in County of Nassau*, 733 F. Supp. at 568.

109. Pub. L. 100-688, Title I, § 1001, 102 Stat. 4139 (codified as amended at 33 U.S.C. §§ 1401-1445). Sections 1414b and 1414c are new additions and 1414a was repealed and amended in part.

110. Editorial, *Monitoring Ocean Dumping*, 120 N.J.L.J. 1108 (1987).

111. 33 U.S.C. § 1401 (1988).

112. The 106 mile site is located off the edge of the continental shelf, 115 nautical miles from Atlantic City, New Jersey. S. REP. NO. 431, 100th Cong., 2d Sess. 3, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5869. This is the only area where the United States authorizes ocean dumping of sewage sludge. *Id.* at 5870. The 106 mile site had previously been used as an industrial waste dump site. Bakalian, *supra* note 1, at 202 n.67.

113. 33 U.S.C. § 1414b(K)(6) and 1412a(b) (amending 33 U.S.C. § 1412a(d)(1980)). In Seaburn, Inc. v. EPA, 712 F. Supp. 218 (D.D.C. 1989), the district court noted that the

qualification of what constituted sewage sludge or industrial waste was that which "unreasonably degraded the environment." This language was strictly construed by the court in *City of New York v. EPA* and provided a loophole for continued dumping by New York and New Jersey.[114]

Section 1414b is the Ocean Dumping Ban Act's most notable addition to the MPRSA. Outstanding features of section 1414b include a coercive scheme to ensure that dumpers enter into compliance agreements or enforcement agreements and adhere to their proposed schedule through the imposition of special dumping fees.[115] Special dumping fees, starting at $100.00 per ton of sewage sludge or industrial waste, and increased in increments of $50.00 per ton a year, are levied on all dumpers. However, the EPA is authorized to waive these fees, with the exception of $15.00 per dry ton, upon the satisfactory performance in accordance with the compliance agreement.

The $15.00 fee imposed on every dry ton that is transported or dumped is paid to the EPA for agency expenses.[116] The statute apportions the money collected under the exception provision to the EPA, Coast Guard and the Under Secretary of Commerce for Oceans and Atmosphere, and dictates how the funds shall be used.[117] The EPA is to apply the money towards costs associated with the issuance of permits (including any environmental assessments conducted in connection with permit issuance), research, studies and the preparation of reports. The money the Coast Guard receives is to be spent on surveillance and enforcement activities while the Under Secretary of Commerce is to use the funds for monitoring and research purposes.

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superseding definition of industrial waste in the 1988 amendment includes stack emissions or incinerator residue produced from ocean incineration irrespective of its altered or reduced toxic content. "Ocean incineration is a process that converts some of the liquid waste into 'residues' or emissions which are then 'dispersed into the atmosphere and generally deposited into the ocean'." *Id.* at 219 n.3 (citation omitted); *see also* Waste Management Inc. v. EPA, 669 F. Supp. 536 (D.D.C. 1987)(EPA's deferral of consideration of applications for ocean incineration permits pending promulgation of regulations was not arbitrary and capricious).

114. *See supra* text accompanying notes 77-89.

115. 33 U.S.C. § 1414b(2)(b) (1988).

116. 33 U.S.C. § 1414b(2)(b) (1988). In essence this provision is shifting the administrative cost burdens to dumpers. Federal agencies are authorized to charge a fee for their services pursuant to the Independent Offices Appropriation Act. 31 U.S.C. § 483a (1976).

117. 33 U.S.C. § 1414b(f)(1988). The EPA is authorized to retain one-third of the fees paid to it in a fiscal year and transfer one-third each to the Coast Guard and the Under Secretary of Commerce. *Id.*

Eighty-five percent of the special dumping fees collected from dumpers who fail to comply with terms of a compliance agreements are paid into a trust account established by the violator.[118] The remaining fifteen percent is used to capitalize state created Clean Oceans Funds and State Water Pollution Control Revolving Funds.[119] Money deposited by violators into their individual trust accounts are available to them, with EPA approval, for expenditure on certain projects. The statute authorizes the trust fund monies to be spent on the development and implementation of alternative disposal systems or pretreatment of wastes.[120] Any unauthorized use of the trust fund results in forfeiture.

Another feature of the newly amended MPRSA is a state reporting requirement. Governors of states in which the dumpers are located, namely New York and New Jersey, are required to report to the EPA on a yearly basis. Failure to do so results in the withholding of federal funds distributed under the Federal Water Pollution Control Act.[121] The reports are to include the progress of the municipal authorities in complying with the schedule to phase out ocean dumping and a description of any state action regarding the construction and operation of alternative disposal systems. The purpose of the state reporting requirement is to get the state involved with the process because permits for any land based alternatives, in all likelihood, will ultimately be issued by the state.[122] The EPA must report to Congress within three months of receipt of the state reports.

Congress should be applauded for taking the initiative to provide the framework for placing the ultimate goal, an end to ocean dumping, within reach. It is a great achievement that faced with the alternatives of disposing wastes in our backyard or continuing ocean dumping, Congress has not succumbed to political considerations.[123]

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118. 33 U.S.C. § 1414b(b)(2)(A) (1988).

119. Each state which is authorized to dump is required to set up a Clean Oceans Fund. In the event that special dumping fees are levied and the state has yet to establish a Clean Ocean Fund, the monies are to be paid to the EPA to be held in escrow. Title VI of the Federal Water Pollution Control Act requires each state to establish and maintain a Water Pollution Control Revolving Fund. *See* 33 U.S.C. §§ 1381-1387.

120. 33 U.S.C. § 1414b(e)(2)(B) (1988).

121. 33 U.S.C. § 1381 (1988).

122. S. REP. NO. 431, 100th Cong., 2d Sess. 7, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5874.

123. The ocean has a weak constituency compared to that of landowners or communities located near proposed land disposal sites. Public officials in Nassau County, New York, abandoned a land based disposal plan as a result of public opposition despite strong evidence that the plan provided a safe and relatively inexpensive disposal alternative and 14 million dollars

The adoption of a hardline approach, coupled with an economically coercive strategy, appears to have overcome the hurdle of competing political interests.[124]

In 1989, the United States brought suit against the nine municipal authorities[125] that are currently dumping to ensure that they would comply with the 1988 amendment. The actions were resolved by consent decrees which outline plans for sewage sludge management, and set timetables for accepting, implementing and constructing land-based disposal alternatives. A number of challenges to these consent decrees, brought by affected landowners and the municipalities, have been litigated in the courts.[126] However, so far the courts have upheld strict compliance with the consent decrees, and the construction of treatment plants are underway.

In analyzing the 1988 amendment to the MPRSA, the inquiry should not focus on whether ocean dumping will cease by December 31, 1991. Given the background in achieving the goal of ending ocean dumping, success should not be measured by whether an arbitrary date has been met. Rather, the emphasis should be on whether meaningful steps are being taken to implement long term solutions in

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had already been spent on the project. Lahey, *The Tide Turns*, *supra* note 5, at 414-15.

124. District Court Judge H. Lee Sarokin eloquently expressed the dilemma:

> [h]aving recognized the need to prohibit or control sewage and toxic wastes, local government supports the solution so long as it is far distant. It is understandable that no community wishes a sewage treatment plant or toxic waste dump within its borders. But if we are to solve the problems of pollution, locations must be found. Certainly they should be in areas of the least impact, but they must be somewhere! Local self-interest may have to give way to the common good.

Bergen Co. Util. v. EPA, 507 F. Supp. 780, 781 (1981).

125. The nine authorities that are currently dumping include: New York City, Nassau County, Westchester County, Bergen County Utilities Authority, the Joint Meeting of Essex and Union Counties, the Linden Roselle Sewerage Authority, Middlesex County Utilities Authority, the Passaic Valley Sewerage Commission and the Rahway Valley Sewerage Authority. S. REP. NO. 431, 100th Cong., 2d Sess. 6, *reprinted in* 1988 U.S. CODE CONG. & ADMIN. NEWS 5867, 5872.

126. Ludlow Park Homeowners Ass'n v. County of Westchester, 741 F. Supp. 1126 (S.D.N.Y. 1990) (property owners challenged County Board's decision to expand Yonkers wastewater treatment plant in Article 78 proceeding, alleging Board did not comply with State Environmental Quality Review Act and that an environmental impact statement was needed); United States v. County of Nassau, 733 F. Supp. 563 (E.D.N.Y. 1990) (Nassau was denied modification of its consent decree, which called for construction of a dewatering plant, to enable them to develop a proposal to contract with a private vendor to fulfill their obligation). Nassau County legislators were initially in favor of constructing a sewage treatment plant in Bay Park until community members voiced sharp opposition. However, after failing to modify the original plan through litigation, Nassau County, in the face of fines which threatened to cripple the county, yielded to federal pressure. *See* Newsday, Aug. 28, 1990, at 6, col. 1 (L.I. ed.).

which waste is being disposed of in the most environmentally sound and efficient way. In selecting a deadline, the purpose is to minimize tension between a date that is so far off in the future that it discourages any serious consideration today, and an unreasonably short deadline that cannot be complied with in any meaningful fashion. The deadline need not reflect realistic dates of compliance, but rather should be geared towards demanding immediate action towards meeting the goal.

In addition, the method employed to compel compliance is of considerable importance. Instead of using incentives to encourage existing dumpers to explore and develop land-based alternatives to ocean dumping, Congress has threatened local governments with financial ruin. Although the concept of using economic charges to control pollution is not new,[127] this is the first time Congress has employed such a program. The special dumping fee framework assesses a flat fee according to the amount of wasted dumped. The benefit of a flat fee is that it is easy to administer, thus resulting in low administrative costs.

After seventeen years of ongoing struggle to combat ocean dumping, what emerges from the Ocean Dumping Ban Act is a light at the end of the tunnel. Congress has apparently prevented dumpers from evading compliance while blocking bureaucratic delays. Interim land-based measures are being implemented while plans for long-term alternative systems are being formulated. The EPA and the United States enforcement agencies have taken Congress' lead and displayed intentions to strictly adhere to the December 31, 1991 deadline. The judiciary has also sent a clear message: that they will not tolerate procrastination.

Nevertheless, the wisdom of Congress' flat out ban against ocean dumping must also be addressed. The failure to consider the environmental and economic tradeoffs expose the major weaknesses of the newly amended MPRSA. Ending reliance on the ocean dumping of sewage sludge and industrial waste does not solve the disposal problem, it merely shifts the problem to other media. There are only three alternatives to the disposal of waste: land, air and water; each poses its own adverse environmental risks. Information from the scientific community is still lacking in regard to comparative analysis of each disposal option. Land-based alternatives that are commercially feasible include landfilling and landspreading. Landfilling, the most

127. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 306.

common form of sludge disposal in the United States,[128] is the depositing of sludge in landfills or the composting of sludge in ponds.[129] Landspreading is the process of dispersing sludge on agricultural fields as fertilizer or soil conditioner.[130] Although each of these methods has been used safely, each method poses substantial risks. Toxic and heavy metal leachate from sewage sludge can contaminate ground water, thereby endangering our drinking water.[131] Moreover, food supplies are threatened when crops absorb toxic metals from landspreading of sewage sludge.[132] Furthermore, the dwindling availability of land, especially in the New York metropolitan area, makes land disposal options exceedingly costly. "The estimated costs of land-based alternatives may be ten to one hundred times greater than the costs of utilizing an ocean disposal option."[133]

Incineration of sewage sludge is widely believed to be the most effective method of disposing of ultrahazardous sludge.[134] However, this method also poses adverse environmental and human health risks. Incineration harms the environment by contributing to air pollution.[135] Incineration emissions have been found to expose surrounding communities to levels of cadmium, a toxic metal, equivalent to that of smoking a pack of cigarettes a day.[136] In addition, a significant amount of the contaminants in sewage sludge remain in the ash residue produced by incineration.[137] Disposal of ash residue therefore presents the same problems associated with land disposal of the sludge itself.

Critics of the ocean dumping moratorium have cited the neglect of the benefits that can be obtained by utilizing the ocean in a comprehensive waste management system. Ecologists agree that the waste assimilative capacity of the ocean is tremendous if used prop-

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128. Lahey, *The Tide Turns*, *supra* note 5, at 411. Forty-four percent of the sewage sludge generated in the United States is disposed of in landfills. *Id.*

129. *Id.* For further information regarding the dangers posed by composting sewage sludge *see* Passman, *Composting Municipal Sludge: Public Health and Legal Implications*, 3 HARV. ENVTL. L. REV. 381 (1979).

130. Lahey, *The Tide Turns*, *supra* note 5, at 411. Landspreading accounts for approximately twenty-four percent of all sludge disposal. *Id.*

131. *Id.*

132. *Id.*

133. KINDT, *supra* note 4, at 1101.

134. Lahey, *The Tide Turns*, *supra* note 5, at 412. Incineration represents about twenty-two percent of sludge disposal. *Id.* at 411.

135. The quality of stack emissions is subject to regulation under the Clean Air Act. 42 U.S.C. §§ 7401-7642 (1988).

136. Lahey, *The Tide Turns*, *supra* note 5, at 412 n.160.

137. *Id.*

erly.[138] In fact, many wastes which are currently dumped into the ocean could actually be beneficial to the marine environment through the application of certain scientific or technical processes. For example, sewage sludge can be a safe and useful fertilizer when toxic chemicals are removed.[139] The issue is how much can be deposited a sea without causing significant harm to the marine environment.

The Ocean Dumping Ban Act, specifically the special dumping fee structure, fails to consider the desirability of the ocean, in a network of environmentally sound waste management. The use of a varied fee verses a flat fee can be designed to accomplish significant objectives. For example, a varied fee graduated according to the types and concentrations of toxins in the waste would create incentives for dumpers to implement methods to reduce toxic levels. Existing licensing procedures require assessing the chemical composition of wastes that are dumped. Therefore, to calculate dumping charges based on the toxicity of waste would not require an extensive administrative burden. However, it is pure conjecture whether a varied fee would translate into the same benefits to the ocean environment that a moratorium can guarantee. In evaluating the varied fee alternative it is pertinent to keep in mind that we are dealing with the public sector. Municipalities or local governments are more prone to just pay the bill without responding quickly to reduce toxic levels as opposed to the profit motivated private industry. Moreover, significant cash outlays are required in order to reduce toxicity in sludge. The bureaucratic makeup and the competing special interests tend to delay governmental expenditures for benefits that are discernible in the future.

CONCLUSION

The Ocean Ban Act of 1988 represents a loud and clear pronouncement by Congress that we as a nation are unwilling to take the risks associated with using our oceans as a garbage receptacle. The legal means by which to enforce this collective consensus is available now, as it was in 1972. The only hurdle at this juncture is

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138. Testimony of Dr. David D. Smith before the Senate Committee. S. REP. NO. 451, 92nd Cong., 2d Sess. 6, *reprinted in* 1972 U.S. CODE CONG. & ADMIN. NEWS 4234, 4239; *see also* Monastersky, *Deep-Sea Muds Hold Tight to 'Hot' Elements*, 138 SCI NEWS 36 (July 21, 199)(discussing the possibility and potential benefits of burying radioactive waste and heavy metals in steel canisters below the ocean floor in sub-seabed sediments).

139. Lahey, *Ocean Dumping Fees*, *supra* note 5, at 327.

the public demand or will to enforce. The early implementation and enforcement efforts of the 1988 amendments appear to be very enthusiastic. However, we can only hope that history will not repeat itself in this instance by having initial enforcement efforts fade. Public pressure will play a major role in the success or failure of the Ocean Dumping Act of 1988. It is difficult to project if the current wave of environmental consciousness will continue. In addition, shifts in political policy cannot easily be predicted. Although the current Administration supports and promotes the environmental trend today, it is unknown whether or not they will continue. As past experience shows, changes in the presidency also leads to uncertainty. The priority assigned to environmental issues will also have a major impact on the political zealousness in which the Act is pursued.

Finally, the prudence of Congress' moratorium will certainly be debated for years to come and may eventually hinder what appears today to be a final resolution to the ocean dumping dilemma. What is clear is that the dangers facing the ocean environment are severe and may be irreparable. The risks posed by continued ocean dumping to human health and to the environment are too great to gamble or to forestall action today.

Maryann Taylor