THE NEED FOR EXACTING LEGISLATION REGULATING THE SHIPMENT OF RADIOACTIVE WASTES IN VERMONT

INTRODUCTION

The dangers of radioactive wastes are well documented.[1] The United States General Accounting Office (GAO) reported that "[r]adioactive wastes being highly toxic can damage or destroy living cells, causing cancer and possibly death depending on the quantity and length of time individuals are exposed to them. Some radioactive wastes will remain hazardous for hundreds of thousands of years."[2]

There has been a rapid increase in the volume of radioactive shipments in the United States in recent years. "During 1961, an estimated 200,000 packages of radioactive materials were transported. That number grew to 1,300,000 packages in 1975 and is expected to reach 3,500,000 by 1985."[3] Concurrent with an increase in the number of shipments is the increase in the inherent risks and hazards. According to one commentator, "[o]n a number of occasions, radioactive shipments in the [United States] have been suspected to emit greater radiation than regulations permit . . . ."[4] There is also considerable uncertainty about the kinds of risks that are involved in the shipment of radioactive materials.[5] Finally, as one official of the United States Department of Transportation recognized, "[i]t is likely that some day some of these shipments will be involved in severe accidents."[6]

Unresolved legal issues have created a growing dispute concerning the permissible level of state and local regulation, in relation to federal regulation, of these substances. Perceiving insufficient federal safety standards, many states and municipalities have enacted their own statutes and regulations addressing the ship-

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1. *See, e.g.*, A. GYORGY, NO NUKES (1979).

2. U.S. GENERAL ACCOUNTING OFFICE, REPORT TO CONGRESS, NUCLEAR ENERGY'S DILEMMA: DISPOSING OF HAZARDOUS RADIOACTIVE WASTE SAFELY, EMD-77-41 at i (Sept. 9, 1977).

3. NATIONAL CONFERENCE OF STATE LEGISLATURES, OFFICE OF SCIENCE AND NATURAL RESOURCES, ISSUE BRIEF, RADIOACTIVE MATERIALS TRANSPORT 2 (March 15, 1981).

4. Norton, *Policy Issues in the Routing of Radioactive Materials Shipments*, 21 NAT. RESOURCES J. 735, 739 (1981).

5. *Id.* at 740.

6. *Id.* (citing Shapely, *Radioactive Cargoes: Record Good but the Problems Will Multiply*, 172 SCIENCE 1318-19 (June 25, 1971)).

ment of radioactive wastes.[7] This has resulted in litigation, most commonly between the producers or transporters of the waste and the state or local government, over the constitutionality of these regulations.[8] The arguments against the validity of these nonfederal regulations are that they are violative of the commerce clause and that the federal government has preempted regulation of the transportation of radioactive wastes.[9] Although the decisions have found certain nonfederal regulations impermissible,[10] the law remains unsettled as to the scope of permissible nonfederal regulation.

This note will address some of the inadequacies of the federal regulations; the need for nonfederal regulation, particularly in Vermont; the constitutional challenges likely to be raised in opposition to any proposed regulations; and why, with careful drafting, these regulations should withstand these challenges.

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7. U.S. GENERAL ACCOUNTING OFFICE, REPORT TO CONGRESS BY THE COMPTROLLER GENERAL, FEDERAL ACTIONS ARE NEEDED TO IMPROVE SAFETY AND SECURITY OF NUCLEAR MATERIALS TRANSPORTATION, EMD-79-18, at 30 (May 7, 1979) [hereinafter cited as COMPTROLLER GENERAL].

According to Oak Ridge National Laboratories, forty-six states and numerous localities have legislation affecting the transportation of radioactive wastes. For example: Tucson, Arizona has banned transportation of high level wastes from its streets; Marin County, California has banned the shipment of radioactive wastes into or through the county; Connecticut requires routine inspection by the state police of vehicles transporting radioactive materials and also requires transporters to have a state permit; Louisiana prohibits transportation of high level radioactive waste into the state; Carteret, New Jersey has banned radioactive waste shipments; New York City restricts the shipment of high level radioactive wastes into or through the city unless a Certificate of Emergency Transport has been obtained; New York State has authorized the legislative body of each municipality to prohibit the transportation of large quantity radioactive materials; Virginia requires armed guards on every shipment of radioactive wastes that passes through the state; numerous Vermont towns have banned the transportation of radioactive wastes through their respective borders. C.S. FORE, OAK RIDGE NATIONAL LABORATORIES, TRANSPORTATION OF RADIOACTIVE MATERIALS: THE LEGISLATIVE AND REGULATORY INFORMATION SYSTEM, ORNL/TM-7439 TTC-0280, at 13-54 (March 1982).

8. *See* Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982) (Washington statute banning the shipment of radioactive wastes produced outside the state from entering the state for storage or disposal held violative of the commerce clause and preempted by the Atomic Energy Act); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982) (Illinois statute banning the shipment of radioactive wastes produced outside the state from entering the state for disposal held violative of the commerce clause and preempted by the Atomic Energy Act).

9. *See* Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982).

10. *See* Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982).

I. Existing Law and Regulations

A. *Federal Law*

The federal regulations concerning the shipment of radioactive wastes are promulgated by the Department of Transportation (DOT)[11] in furtherance of the congressional objectives set forth in the Hazardous Materials Transportation Act[12] and by the Nuclear Regulatory Commission (NRC)[13] under powers granted by Congress in the Atomic Energy Act.[14] In order to eliminate duplicate and conflicting efforts resulting from overlapping authority, the DOT and the NRC entered into an agreement[15] delineating each agency's respective authority. Generally, the DOT is responsible for regulating safety in the transportation of radioactive materials while NRC approves or disapproves package designs for the more hazardous quantities of radioactive materials.[16]

Criticism of these federal regulations has come from varied sources. The GAO reported that "[f]ederal agencies responsible for the safe transportation of nuclear materials have not developed and enforced policies and regulations which adequately protect the public from exposure to radiation from such shipments."[17] The NRC and the DOT contracted with nine states to determine actual handling practices of radioactive materials. The inspectors discovered:

> —measured radiation levels on some packages that were higher than the level indicated on the label,
> —instances where transportation workers were exposed to levels of radiation exceeding limits established for the general public,
> —excessive radiation readings at terminals and in trucks, and
> —vehicles that lacked proper placards . . . .[18]

The GAO also found that "lack of planning and preparedness for nuclear transportation accidents could jeopardize public health

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11. 49 C.F.R. §§ 170-179, 390-397 (1982).
12. 49 U.S.C. §§ 1801-1812 (1976 & Supp. V 1981).
13. 10 C.F.R. § 71 (1983).
14. 42 U.S.C. §§ 2011-2296 (1976 & Supp. IV 1980).
15. Transportation of Radioactive Materials; Memorandum of Understanding, 44 Fed. Reg. 38,690 (1979).
16. *Id.*
17. Comptroller General, *supra* note 7, at i.
18. *Id.* at 11.

and safety."[19]

One commentator stated that "there does not exist a reliable basis for computing expected values of damages (e.g., of radiation exposure) from radiological transport accidents. Correspondingly, decisions based on such expected values . . . must be regarded at present as not having a sound methodological basis."[20] He was also critical of a particular government accident study which he felt "[did] not recognize the potentially more serious synergistic effect of human error worsening accident consequences . . . ."[21] Similarly, the United States District Court for the Southern District of New York found an inadequate basis for a DOT rule preempting a New York City ban on the transportation of radioactive wastes within city limits,[22] although this ruling was reversed on appeal by a split panel of the second circuit.[23]

Specific examples of the inadequacies of the federal regulations can be found in the puncture test,[24] the free drop test,[25] and the immersion test,[26] which apply to the containment vessels required to ship high level radioactive wastes. The puncture test requires that the vessels be able to withstand puncture when dropped from a height of forty inches onto a steel cylinder six inches in diameter;[27] the free drop test requires that they be able to withstand a drop of thirty feet onto a flat unyielding surface.[28] An accident occurring on a Vermont bridge could result in the containment vessel dropping a distance considerably further than either the forty inches in the puncture test or the thirty feet of the free drop test. Even in the absence of a complete puncture, a crack in the containment vessel would permit the escape of the coolant in the shipping cask. Without the coolant the radioactive waste would heat up and the more volatile radionuclides, such as Ce-

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19. *Id.* at 25.

20. Norton, *supra* note 4, at 749.

21. *Id.* at 745 (referring to SANDIA NATIONAL LABORATORIES, TRANSPORTATION OF RADIONUCLIDES IN URBAN ENVIRONS: DRAFT ENVIRONMENTAL ASSESSMENT, NUREG/CR-0743, SAND 79-0369 (prepared for the U.S. Nuclear Regulatory Comm'n, Albuquerque, N.M., July 1980)).

22. City of New York v. DOT, 539 F. Supp. 1237, 1262 (S.D.N.Y. 1982).

23. City of New York v. DOT, 715 F.2d 732 (2d Cir. 1983). For a discussion of these decisions see notes 111-39 and accompanying text.

24. 10 C.F.R. § 71 app. B (1983).

25. *Id.*

26. *Id.*

27. *Id.*

28. *Id.*

sium-137, would escape through these cracks.[29] Cesium-137 remains toxic for approximately 300 years.[30]

The immersion test requires that the containment vessel be able to withstand immersion in three feet of water for a period of eight hours without leaking radiation above a specified level.[31] There are many locations throughout the nation, and in Vermont in particular, where a serious accident could place a containment vessel in greater than three feet of water. There is also the distinct possibility that the time required to retrieve this vessel could exceed eight hours. This is especially true in a rural location such as Vermont where emergency equipment and trained personnel are not readily available.

A further problem is that the regulations place the quality control of the manufacture of packaging materials with either the manufacturer or the shipper rather than with a government agency or an objective third party.[32] If the manufacturer is negligent, it may only become apparent after irreparable harm has occurred. Although it can be argued that the manufacturer's or shipper's potential liability should discourage any negligence, it would seem more prudent to reduce the risk through objective third party quality control. The problem with toxic wastes, which the United States is now experiencing, may serve as a lesson about the effects of inadequate supervision.

The preceding examples are only a few of the inadequacies present in the federal regulations and are included to indicate the magnitude of the regulations' shortcomings rather than to cover the scope of these inadequacies.

B. *Nonfederal Law*

In response to: 1) the lack of federal enforcement, 2) the absence of notice concerning emergencies, 3) the political concerns, emotional reasons, and antinuclear sentiments, and 4) the sincere concern about the safety of nuclear shipments,[33] states and municipalities have passed their own more stringent statutes and regula-

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29. Sierra Club Radioactive Waste Campaign, Shipping Casks: Are They Safe? 4 (1980).

30. A. Gyorgy, No Nukes 55, 74 (1979).

31. 10 C.F.R. § 71 app. B (1983).

32. 10 C.F.R. § 71 app. E (1983).

33. Comptroller General, *supra* note 7, at 33.

tions.[34] "In 1977 alone, 29 bills to regulate the transportation of nuclear materials were introduced in 19 states . . . ."[35]

An example is Michigan, which passed regulations remedying some of the federal inadequacies.[36] The Michigan regulations require that for transport over a major bridge[37] the containment vessel be able to withstand a free drop from a height that

> shall equal or exceed the height of the bridge roadway from the water, and the puncture test shall be immediately followed by an immersion test at a depth of water equal to or exceeding the maximum depth of water under the major bridge and for a period of time at least as long as the planned time for recovery.[38]

This regulation was enacted to remedy the deficiency in the federal regulations which call for a free drop from a height of thirty feet and immersion in three feet of water for eight hours.[39] Other states and municipalities have passed regulations restricting the times of day and days of the week when radioactive wastes may be transported.[40] New York City has gone so far as to ban shipments within the city unless the transporters have received a certificate of emergency transport issued by the city.[41]

Some of the regulations and statutes passed by states and municipalities have ended up in litigation, frequently between the nonfederal regulator and the producer of the waste.[42] These cases generally address the questions of who has the authority and how exclusive that authority is to regulate the transportation of radioactive wastes. The decisions to date have not fully resolved these issues.[43]

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34. *See supra* note 7.

35. COMPTROLLER GENERAL, *supra* note 7, at 30.

36. MICH. ADMIN. CODE R. 29.551-.560, 325.5801-.5810 (Supp. 1982).

37. "'Major bridge' means a structure which has a span from shore to shore of more than 250 meters or which spans water which has a maximum depth of more than 15 meters." MICH. ADMIN. CODE R. 29.551(b), 325.5801(b) (Supp. 1982).

38. MICH. ADMIN. CODE R. 29.555(f), 325.5805(e) (Supp. 1982).

39. 10 C.F.R. § 71 app. B (1983).

40. *E.g.*, N.J. ADMIN. CODE tit. 7, § 28-12.5(k) (1980); CONN. AGENCIES REGS., § 19-409d-55 (1981). *See also supra* note 7.

41. NEW YORK CITY, N.Y., HEALTH CODE, § 175.111 (1976).

42. Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982). *See infra* text accompanying notes 86-90, 169-80.

43. Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982). *See infra* text accom-

II. Transportation of Radioactive Waste in Vermont

Vermont's only statute addressing the transportation of radioactive wastes places decisions concerning routing under the control of the Secretary of the Agency of Transportation.[44] Under this statute, Vermont's Agency of Transportation has recently passed regulations[45] which are essentially an incorporation by reference of the federal regulations addressed to the transportation of radioactive wastes.[46] The sections of the federal regulations which are inapplicable to Vermont are deleted.[47] Vermont's regulations also contain a few provisions, not in the federal regulations, which provide a measure of protection which is greater than the protection of the federal regulations. But these added protections are minimal.[48] Vermont's promulgation of safety standards which are only minimally stricter than the federal regulations leaves Vermont with the inadequate protection of the federal regulations already discussed.[49]

This absence of more rigorous standards has caused at least one radioactive waste shipper to reroute his shipments through Vermont, thereby avoiding states with more rigorous standards and following the path of least resistance.[50] During the summer of 1982, a series of shipments of high level radioactive wastes was scheduled to be transported through Vermont from the Chalk River Nuclear Laboratories in Ontario, Canada by the Nuclear Assurance Corporation of Atlanta, Georgia.[51] These shipments were made until the general public learned of their occurrence, at which

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panying notes 86-90, 169-80.

44. Vt. Stat. Ann. tit. 19, § 50 (Cum. Supp. 1983).

45. Rules for Transportation of Hazardous Materials, Vermont Agency of Transportation (July 1, 1983).

46. *Id.* at Form APA-3A.

47. *Id.*

48. *Id.* at 1-7; *see infra* notes 50, 64-67 and accompanying text.

49. *See supra* notes 11-32 and accompanying text.

50. Vermont's new regulations attempt to rectify this situation by making it unacceptable for a shipper to route his shipments through Vermont if it is not the most direct route from origin to destination and the reason for choosing the Vermont route is the existence of more stringent regulation in jurisdictions other than Vermont. Rules for Transportation of Hazardous Materials, Vermont Agency of Transportation, Action 6, § IV(c) (July 1, 1983). Even if this regulation proves effective it will not affect shipments originating in Vermont or shipments where Vermont highways provide the most direct route. *See infra* notes 64-67 and accompanying text.

51. Letter from the Nuclear Assurance Corp., Atlanta, Ga., to the Director, Region I, U.S. Nuclear Regulatory Comm'n, Office of Inspection and Enforcement, King of Prussia, Pa. (July 7, 1982) (on file with the *Vermont Law Review*).

time they were discontinued for security reasons.[52]

In a letter from the Nuclear Assurance Corporation to the NRC, four routes were proposed for the shipments,[53] only one of which passed through Vermont. Two of the proposed routes ran into resistance because of the difficulty in obtaining permits for transporting spent nuclear fuel on the New York State Thruway.[54] The third route met resistance because it passed through Michigan whose regulations on containment vessels are more rigorous than those of the NRC.[55] The Nuclear Assurance Corporation was using vessels that met the NRC standards but failed to meet Michigan's standards. These factors resulted in the shipments being sent through Vermont,[56] although the Vermont route was the longest of the four proposed. In fact, two of the routes were more than 400 miles shorter.[57]

Vermont's concern is not limited to nuclear wastes that pass through the state. Vermont produces its own nuclear wastes at Vermont Yankee, a nuclear power plant located at Vernon, Vermont. Although the radioactive waste produced there is currently stored on site, the storage space is limited and 1989 has been projected as the date when storage space will be exhausted and the wastes will need to be transported elsewhere.[58]

In the absence of action by the state, Vermont towns have been passing ordinances in an attempt to control transportation of radioactive wastes.[59] These ordinances typically take the form of

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52. Times Argus, Sept. 4, 1982, at 1, col. 1.

53. Letter from the Nuclear Assurance Corp., Atlanta, Ga., to the Director, Division of Safeguards, U.S. Nuclear Regulatory Comm'n, Washington, D.C. (Nov. 13, 1982) (on file with the *Vermont Law Review*).

54. Letter from the Nuclear Assurance Corp. to the Director of Safeguards, U.S. Nuclear Regulatory Comm'n, Washington, D.C. (May 25, 1982) (on file with the *Vermont Law Review*).

55. *Compare* MICH. ADMIN. CODE R. 29.555(f) (Supp. 1982) *and* MICH. ADMIN. CODE R. 325.5805(e) (Supp. 1982) *with* 10 C.F.R. § 71 app. B (1983). *See supra* text accompanying notes 36-39.

56. *See supra* note 51.

57. *See supra* note 53.

58. Telephone interview with G. Dean Weyman, Senior Chemistry and Health Physics Engineer, Vermont Yankee Nuclear Power Corporation, Brattleboro, Vt. (Feb. 22, 1983).

59. *See, e.g.*, Town of Corinth Ordinance Against the Mining and Milling of Uranium, adopted Feb. 3, 1981 ("[T]ransport . . . of nuclear waste materials shall be prohibited within the borders of the town of Corinth, County of Orange, State of Vermont."); Art. XXXIV, Town Report of 1977, Norwich, Vermont (The town of Norwich voted to "prohibit the transportation . . . of radioactive nuclear wastes . . . in the land, air, or water of the town of Norwich.").

outright bans which would likely be characterized in litigation as "border closing."[60] Although "border closing" regulations are per se invalid under the commerce clause,[61] there has been no need to challenge them in the courts because the Vermont townships lack the enforcement capacity to effectuate them.[62] Vermont towns lack knowledge of the times the shipments are scheduled to pass through their respective borders and in many instances lack law enforcement personnel. The state, on the other hand, has both the requisite knowledge of the shipment schedules and the personnel to enforce regulations.[63] The actions by Vermont towns and by some states indicate a growing awareness of the need for stricter safety regulations for the transportation of radioactive wastes.

Although in September 1982 Vermont's Secretary of Transportation implicitly characterized New York's and Michigan's regulations as "unreasonable,"[64] Vermont has since responded to the growing concern over the shipment of radioactive wastes by passing the new regulations already discussed.[65]

The major thrust of these regulations is an attempt to block shipments from passing through Vermont if the Vermont route is not the most direct route from source to destination, and if the reason for choosing the Vermont route is the existence of more rigorous standards in neighboring states.[66] Although the recently en-

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60. *See* Philadelphia v. New Jersey, 437 U.S. 617 (1978). *See also infra* notes 86-90 and accompanying text for discussion of the concept of "border closing."

61. *Id.* Although a distinction can be made between the statute challenged in *Philadelphia v. New Jersey* which involved an interstate ban without an accompanying intrastate ban, and the town ordinances which involve both intratown and intertown bans, this distinction should not change the invalidity of the ordinances because the Supreme Court has stated that it is indisputable that no state may completely exclude federally licensed commerce. Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142 (1963).

Another distinction is that *Philadelphia v. New Jersey* involved state bans, not town bans, but it would be highly unlikely that a town would be permitted to obstruct interstate commerce (except in situations of particularized need, *see infra* text accompanying notes 107-35) where a state is precluded from the same action.

62. For example, the law enforcement personnel of the Town of Corinth, *see supra* note 59, consists of one part-time constable.

63. Rules for the Transportation of Hazardous Materials, Vermont Agency of Transportation, Action 3 (July 1, 1983).

64. Letter from Tom Evslin, Vermont Secretary of Transportation, to Andrew Lewis, United States Secretary of Transportation (Sept. 8, 1982) (on file with the *Vermont Law Review*).

65. *See supra* notes 44-50 and accompanying text.

66. Rules for the Transportation of Hazardous Materials, Vermont Agency of Transportation, Action 6, § IV(c) (July 1, 1983).

acted regulations are an improvement over previous regulations,[67] they are still seriously deficient in some respects. Two of the more flagrant deficiencies are the absence of specific criteria throughout the regulations[68] and the absence of heightened shipping cask standards.

There is also proposed legislation in the Vermont Legislature[69] which addresses the highway transportation of radioactive wastes, and cask safety in particular, but this bill may be seriously flawed because it is drafted in a manner which appears to be violative of the commerce clause.[70] If this bill makes it out of the Senate Highways and Traffic Committee it is uncertain what its fate will be before the Vermont Legislature.[71]

III. Challenges to the Validity of Nonfederal Regulations

The extent of state regulation permissible under the commerce clause,[72] the extent of federal preemption under the Hazardous Materials Transportation Act (HMTA),[73] and the extent of federal preemption under the Atomic Energy Act (AEA)[74] are the three issues which create the most uncertainty as to the validity of any nonfederal statutes or regulations concerning the transportation of radioactive wastes. Although the federal powers are fairly expansive in regard to these three issues, they do not necessarily preclude nonfederal regulation.

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67. Vt. Admin. Comp. Supp. Agency of Transportation, R.79-13 (1979). These regulations were an incorporation by reference of the relevant federal regulations. Federal regulations which were inapplicable to Vermont were deleted and did not contain the additional provisions which were added to the new Vermont regulations. *See supra* notes 44-45 and accompanying text.

68. *See, e.g.*, Rules for the Transportation of Hazardous Materials, Vermont Agency of Transportation, Action 6, § III(G) (which requires an applicant for a permit to transport radioactive wastes to file an emergency plan, but gives no guidance as to what the plan should entail); § VII(A)(2) (which requires a shipment of radioactive wastes to be accompanied by a vehicle carrying State Monitoring Team personnel whose membership and responsibilities are described in imprecise and vague terms in § I(g) (July 1, 1983).

69. Dr req 83-240-draft 4, Vermont General Assembly (1983).

70. Compare the discussion of the commerce clause in relation to state highway regulations, *infra* text accompanying notes 75-94, with dr req 83-240-draft 4, Vermont General Assembly, § 3116b(c) (1983). This section would require that each shipment be "justified by the most compelling reasons involving urgent public policy or national security interests which transcend public health and safety concerns." *Id.*

71. This is especially true in light of the new Vermont regulations addressing the transportation of radioactive wastes. *See supra* notes 44-50, 65-68 and accompanying text.

72. U.S. Const. art. I, § 8, cl. 3.

73. 49 U.S.C. §§ 1801-1812 (1976 & Supp. V 1981).

74. 42 U.S.C. §§ 2011-2296 (1976 & Supp. IV 1980).

A. *Commerce Clause*

Although stricter nonfederal regulation of the transportation of radioactive wastes would create a burden on interstate commerce, the United States Supreme Court has traditionally shown great deference to state highway safety regulations.[75] "In no field has . . . deference to state regulation been greater than that of highway safety regulation."[76] The Supreme Court, in *Raymond Motor Transportation, Inc. v. Rice*,[77] found Wisconsin regulations restricting the operation of trucks over fifty-five feet long and of double trailers violative of the commerce clause. This decision was founded upon the regulations' substantial burden on interstate commerce and the absence of even a colorable showing by Wisconsin that its regulations contributed to highway safety. The concurring opinion of four justices limits this holding by stating that if safety measures are not illusory, the Court will not second guess legislative judgment about their importance in relation to their burdens on interstate commerce.[78] This view was reaffirmed in *Kassel v. Consolidated Freightway Corp.*[79]

In *Kassel*, the district court, in overturning an Illinois statute, found safety measures limiting the length of tractor-trailers to be illusory and found the burden on interstate commerce to be significant.[80] The statute limited the length of tractor-trailers to sixty feet which, in effect, eliminated the use of double trailers which are all sixty-five feet long.[81] The state failed to produce evidence which demonstrated that the double trailers were more hazardous than single trailers. In fact, the court indicated that the evidence tended to prove just the opposite.[82]

This holding is consistent with the holding in *Raymond Motor* and was upheld by the Supreme Court, yet three dissenting justices thought that the Court had overstepped its authority to re-

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75. Railway Express Agency, Inc. v. New York, 336 U.S. 106 (1949); South Carolina State Highway Dept. v. Barnwell Bros., Inc., 303 U.S. 177 (1938); Raymond Motor Transp., Inc. v. Rice, 434 U.S. 429 (1978) (although the Court found the challenged regulation violative of the commerce clause it affirmed its traditional deference to state highway safety regulations. *Id.* at 443).

76. *Raymond Motor*, 434 U.S. at 443.

77. 434 U.S. 429 (1978).

78. *Id.* at 449.

79. 450 U.S. 662, 670 (1981).

80. *Id.* at 667.

81. *Id.* at 665.

82. *Id.* at 668.

view state legislation under the commerce clause.[83] Even without evidence that the Illinois statute contributed to highway safety, Justice Rehnquist stated in dissent that the Court's decision "seriously intrudes upon the fundamental right of the States to pass laws to secure the safety of their citizens."[84] Although the Court has yet to decide a case where both the safety hazards and the burden on interstate commerce are significant, the Supreme Court stated in *Raymond Motor* that deference should be given to local highway safety regulations and that these regulations enjoy a *strong* presumption of validity.[85]

Two statutes[86] regulating the transportation of radioactive wastes have been found invalid under the commerce clause.[87] The acts were similar in that they both banned the transportation of radioactive wastes, produced outside of their respective borders, into their states for storage or disposal. Laws that arbitrarily burden interstate commerce by placing a ban on shipments based solely on their place of origin are violative of the commerce clause.[88] These statutes are characterized as "border closing" which makes them per se invalid.[89] The reason behind the invalidity of "border closing" statutes can be found in the words of Justice Cardozo: "[The Commerce Clause] was framed upon the theory that the people of the several states must sink or swim together. . . ."[90]

When drafting statutes or regulations, drafters must be careful to avoid either creating a ban on commerce or discriminating be-

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83. *Id.* at 687 (Rehnquist, J. joined by Burger, C.J. and Stewart, J., dissenting).

84. *Id.*

85. *Raymond Motor*, 434 U.S. at 443-44.

86. WASH. REV. CODE ANN. § 70.99 (Supp. 1983-84); ILL. REV. STAT. ch. 111½, § 230.22 (Supp. 1983-84).

87. Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627 (9th Cir. 1982); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982). See *infra* text accompanying notes 169-80 for analysis of these decisions under the preemption doctrine.

88. Philadelphia v. New Jersey, 437 U.S. 617 (1978) (New Jersey statute prohibiting importation of solid or liquid waste originating out of state found violative of the commerce clause); Hughes v. Oklahoma, 441 U.S. 322 (1979) (Oklahoma statute banning the export of minnows found violative of the commerce clause). It should be noted that it is not only the discrimination between interstate and intrastate commerce which violates the commerce clause, but also the existence of the ban itself, whether or not discriminatory. "That no State may completely exclude federally licensed commerce is indisputable . . . ." Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142 (1963).

89. Philadelphia v. New Jersey, 437 U.S. at 624.

90. *Kassel*, 450 U.S. at 687 (Brennan, J., concurring, joined by Marshall, J.) (quoting Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 523 (1935)).

tween interstate and intrastate commerce. If this discrimination exists, it too may be subject to a rule of per se invalidity, particularly if the discrimination can be characterized as economic protectionism.[91] If both creation of a ban and discrimination between interstate and intrastate commerce are avoided, the statute or regulation should be viewed under the deferential standard applied to legitimate state highway regulations.[92] The state's burden then would be to show that the safety measures are not illusory.[93] Given the dangers inherent in radioactive waste transportation and the inadequacies of the federal regulations, this burden should not prove difficult to meet.[94]

B. *Federal Preemption*

The strongest legal challenge to nonfederal regulations concerning the transportation of radioactive wastes is that these regulations are preempted by either HMTA[95] or AEA.[96] The fact that both of these acts create a certain degree of federal preemption is undisputed. The questions that remain are: How exclusive is the federal preemption; does it include the transportation of radioactive wastes; and if it does, to what degree? Before attempting to answer these questions as they apply to the relevant federal statutes, the doctrine of federal preemption needs to be addressed.

Federal preemption may be express, implied, or the result of a conflict between federal and state law.[97] The test for express preemption is that the preemption be the clear and manifest purpose of Congress.[98] If preemption is not expressly stated in the statute it

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91. Philadelphia v. New Jersey, 437 U.S. at 624.

92. *Raymond Motor*, 434 U.S. at 443.

93. *See id.* at 443-47.

94. An additional commerce clause problem that is raised by the Chalk River shipment, *see supra* text accompanying notes 51-57, is the effect of state regulations on international commerce. The Court has noted "that Commerce Clause scrutiny may well be more rigorous when a restraint on foreign commerce is alleged." Reeves, Inc. v. Stake, 447 U.S. 429, 437-38 n.9 (1980). The law is yet to be clearly delineated in this area. Moreover, most of this case law deals with either economic protectionism or revenue raising rather than highway safety. *See generally* Michelin Tire Corp. v. Wages, 423 U.S. 276 (1976); Complete Auto Transit, Inc. v. Brady, 430 U.S. 274 (1977); Japan Line, Ltd. v. County of Los Angeles, 441 U.S. 434 (1979). If traditional interstate commerce clause analysis is applied to international cases, it seems highly unlikely that permissible state highway safety regulations affecting interstate commerce would have to be relaxed or invalidated when affecting international commerce.

95. 49 U.S.C. §§ 1801-1812 (1976 & Supp. V 1981).

96. 42 U.S.C. §§ 2011-2296 (1976 & Supp. IV 1980).

97. Ray v. Atlantic Richfield Co., 435 U.S. 151, 157-58 (1978).

98. Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947).

can be implied by the intent of Congress as revealed by the statute and its legislative history, by the pervasiveness of the federal regulations, and by the nature of the subject matter, that is, whether it demands exclusive federal regulation to achieve uniformity *vital* to national interests.[99] It should be remembered, however, that "[t]he court begins its analysis with the presumption against preemption."[100] Preemption which arises as a result of a conflict between federal and state law is triggered if the nonfederal statute "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[101] In relation to the transportation of radioactive wastes, "the question of when the Federal Government can preempt State laws and regulations is often difficult to answer and ultimately must be decided by the courts."[102]

1. Preemption Under the Hazardous Materials Transportation Act

HMTA's stated purpose is "to protect the Nation adequately against the risks to life and property which are inherent in the transportation of hazardous materials in commerce."[103] The primary objective of this Act is to minimize risk. This objective is not limited, at least by the Act itself, by cost effectiveness.

The section of HMTA concerning preemption states in part:

> (a) General
>
> Except as provided in subsection (b) of this section, any requirement, of a State or political subdivision thereof, which is inconsistent with any requirement set forth in this chapter, or in a regulation issued under this chapter, is preempted.
>
> (b) State laws
>
> Any requirement, of a State . . . which is not consistent with any requirement . . . or regulation issued under this chapter, is not preempted if . . . the Secretary determines . . . that such requirement (1) affords an equal or greater level of protection to the public than is afforded by the requirements . . . or regulations issued under this chapter and (2) does not

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99. Northern States Power Co. v. Minnesota, 447 F.2d 1143, 1146 (1971).

100. Bischoff, *Nuclear Power Regulation: Defining the Scope of State Authority*, 18 ARIZ. L. REV. 987, 993 (1976).

101. Hines v. Davidowitz, 312 U.S. 52, 67 (1941) (Pennsylvania alien registration act obstructed the purposes of Congress' comprehensive alien registration system). For a more recent discussion of the preemption doctrine see generally Fidelity Fed. Sav. and Loan Ass'n v. de la Cuesta, 458 U.S. 141 (1982); Jones v. Rath Packing Co., 430 U.S. 519 (1977).

102. COMPTROLLER GENERAL, *supra* note 7, at 31.

103. 49 U.S.C. § 1801 (1976).

unreasonably burden commerce.[104]

The preemption of subsection (a) is express but it only applies to state and local laws which are inconsistent with federal requirements. The DOT regulations addressed to the determination of inconsistency consider:

> (1) Whether compliance with both the State or political subdivision requirement and the Act or the regulations issued under the Act is possible; and
>
> (2) The extent to which the State or political subdivision requirement is an obstacle to the accomplishment and execution of the Act and the regulations issued under the Act.[105]

It should be remembered that the purpose of HMTA is protection against risk. Even nonfederal regulations found inconsistent may avoid preemption under subsection (a) if the Secretary determines, under subsection (b), that they provide greater protection than the federal regulation and do not unreasonably burden commerce. A safety regulation's inconsistency with the DOT regulations has been hard to establish because the regulations promulgated under HMTA by the DOT are not always internally consistent. A nonfederal regulation inconsistent with a federal regulation addressed to the free flow of commerce may be upheld because it is in furtherance of HMTA's objective of highway safety.[106]

For example, in *National Tank Truck Carriers, Inc. v. City of New York*,[107] a New York City ban on tank truck shipments of certain hazardous gases was upheld against a challenge that the regulation was inconsistent with a DOT regulation intended to prevent unnecessary delays in the shipment of hazardous materials. The district court judge held that the purpose of the DOT regulation "in requiring expeditious movement, was not to speed transportation for its own sake, but to protect the environs from unduly prolonged exposure to risks . . . ."[108] The second circuit, in affirming the district court, held that the New York City ban promoted safety, which is the goal of HMTA, and that this ban did not overlap with any specific directives of the Secretary of Transportation.[109]

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104. 49 U.S.C. § 1811 (1976).
105. 49 C.F.R. § 107.209(c) (1982).
106. *See infra* notes 107-09 and accompanying text.
107. 677 F.2d 270 (1982).
108. City of New York v. Ritter Transp., Inc., 515 F. Supp. 663, 671 (S.D.N.Y. 1981).
109. *National Tank Truck Carriers*, 677 F.2d at 275.

It may prove difficult to challenge successfully a safety regulation which appears facially inconsistent with a DOT regulation, but which is consistent with HMTA's objective of risk minimization. Additionally, increased safety standards for the transportation of radioactive wastes could be drafted in a manner less inconsistent with DOT regulations addressed to the expeditious flow of hazardous materials than are outright bans on transportation, such as was upheld in *National Tank Truck Carriers*. They could also be drafted to impose a lesser burden on interstate commerce.[110]

In *City of New York v. DOT*,[111] a New York City ban on the highway shipment of high level radioactive materials[112] was upheld in the face of a DOT rule[113] initiated with the partial purpose of preempting some state and all local regulations affecting nuclear material transport. The judge held that the DOT rule was arbitrary and capricious in violation of HMTA and the National Environmental Policy Act (NEPA)[114] to the extent that it preempted New York City's ban on high level radioactive shipments without adequate risk analyses and adequate examination of the alternatives.[115] Although the judge acknowledged the DOT's authority to preempt under HMTA, he limited this preemption by requiring a full consideration of the risk and the possible alternatives.[116]

The judge held that under HMTA it is impermissible, in the face of credible risks with substantial consequences, for the DOT to declare certain levels of safety acceptable regardless of the possibility of achieving higher levels of safety through reasonable measures.[117] "In accordance with the decision Congress made . . . [in 1976 to ban most radioactive shipments from passenger planes], HMTA should be read as requiring DOT when regulating to investigate potentially safer alternatives . . . (including the alternative of no transportation) absent a conclusion that doing so would be un-

110. *See supra* notes 87-94 and accompanying text.

111. 539 F. Supp. 1237 (S.D.N.Y. 1982).

112. NEW YORK CITY, N.Y., HEALTH CODE § 176.111(1) (1976).

113. 46 Fed. Reg. 5298 (1981).

114. 42 U.S.C. §§ 4321-4361 (1976 & Supp. IV 1980).

115. City of New York v. DOT, 539 F. Supp., at 1293. Section 4332 of NEPA requires that any federal agency involved in a "major Federal action significantly affecting the quality of the human environment . . ." 42 U.S.C. § 4332 (1977), file an environmental impact statement (EIS). An EIS is a detailed statement including, among other things, findings on any adverse environmental effects and discussion of alternatives to the proposed action. *Id.*

116. City of New York v. DOT, 539 F. Supp. at 1261.

117. *Id.* at 1289.

reasonable . . . ."[118] The judge also pointed out that the official policy recommended by the Interagency Review Group in its *Report on Radioactive Waste Management*[119] is that spent nuclear fuel be stored where it is generated until the nation as a whole decides what to do with it.[120]

A split panel of the Second Circuit Court of Appeals reversed this decision[121] holding that the DOT's findings were not arbitrary and capricious and were in compliance with both NEPA[122] and the Administrative Procedure Act (APA).[123] The court held that the DOT's environmental assessment was based on scientific studies and that the DOT's determination, based on these studies, that its proposed regulation would not have a "significant impact" on the human environment, was therefore not arbitrary, capricious, or an abuse of discretion.[124] Under the APA,[125] a finding that an agency rule is not promulgated in an arbitrary or capricious manner and that it is in accordance with the law results in a finding of the rule's validity.[126] Without a finding of significant impact on the human environment, the DOT is exempt from preparing a full environmental impact statement (EIS) as required by NEPA.[127] The court also held, contrary to the lower court's holding, that the DOT did not have to consider the alternative of shipping the radioactive waste by barge because the rule was addressed to highway transportation, so that only highway transportation alternatives needed to be considered.[128]

Judge Oakes, in dissent, stated that it is "nonsense" to even talk of the rule having no significant environmental impact.[129] This is similar to the lower court's rhetorical question as to whether a rule that encompasses a possible catastrophe significantly affects the quality of the human environment.[130] Unfortunately the major-

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118. *Id.* at 1292.

119. INTERAGENCY REVIEW GROUP, REPORT TO THE PRESIDENT ON RADIOACTIVE WASTE MANAGEMENT, 100-01 (Mar. 1979).

120. City of New York v. DOT, 539 F. Supp. at 1275-76.

121. City of New York v. DOT, 715 F.2d 732 (2d Cir. 1983).

122. *Id.* at 748.

123. *Id.* at 741.

124. *Id.* at 745-52.

125. 5 U.S.C. §§ 551-706 (1976 & Supp. V 1981).

126. 5 U.S.C. § 706 (1977).

127. 42 U.S.C. § 4332 (1977); *see supra* note 115.

128. City of New York v. DOT, 715 F.2d at 744-45.

129. *Id.* at 753.

130. 539 F. Supp. at 1274.

ity for the second circuit agreed with the DOT's finding that such a possible catastrophe, by itself, did not cause the rule to significantly affect the human environment.[131] As Judge Oakes so aptly pointed out, catastrophes do happen. He reinforced his point by reference to some of the better known catastrophes which were thought to be impossibilities: the wreck of the Titanic; the collapse of the skywalk in the Hyatt Regency; and the accident at Three Mile Island.[132]

Judge Oakes also stated that the DOT has adopted the Council of Environmental Quality guidelines which require that the DOT consider the degree to which effects on the human environment are likely to be highly controversial and the degree to which these effects are uncertain or contain unknown risks.[133] His dissenting opinion found serious deficiencies in the studies which the DOT relied upon as a basis for their decision.[134] For all of the above reasons he would have had the court affirm the lower court's decision and find the DOT's actions to be arbitrary, capricious, and not in accordance with the law.[135]

Even though this DOT rule has been found valid in the second circuit, there still remains the possibility that other circuits and/or the United States Supreme Court will find otherwise. If other circuits or the Supreme Court adopt the position of Judge Oakes' dissent, the DOT would appear impotent, absent a full EIS, to withstand challenges to their preemption of nonfederal safety regulations concerning the shipment of radioactive wastes. The DOT would be faced with the choice of allowing states and municipalities to determine what they consider to be acceptable safety standards or of conducting a full review of all the safety issues and alternatives raised by nonfederal regulations and the transportation of radioactive wastes in general.

The second circuit also seemed to justify its position by noting that all remedies are not lost because of its decision.[136] Even if the DOT's rule is ultimately found to be valid, nonfederal regulations can be upheld through the mechanism of nonpreemption rulings.[137]

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131. City of New York v. DOT, 715 F.2d at 745-52.
132. *Id.* at 753-54.
133. *Id.* at 754.
134. *Id.* at 753-57.
135. *Id.* at 754, 757.
136. *Id.* at 744, 752.
137. *See supra* notes 104-06 and accompanying text.

As long as the regulations provide protection equal to or greater than the federal regulations and are drafted in a manner so as not to "unreasonably" burden commerce, they should be found valid.[138] This avenue is still open to New York City and also is open for any regulations that Vermont might pass.

2. Preemption Under the Atomic Energy Act

Although the NRC, through an agreement with the DOT,[139] has allowed the DOT to assume a significant portion of the regulation of radioactive waste shipments, the NRC has not lost any authority granted by the AEA[140] to regulate in this area. The question that needs to be answered is: What is the scope of authority granted by Congress in the AEA allowing the NRC to regulate radioactive waste transportation?

One of the stated objectives of the AEA is to provide for "a program to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes to the maximum extent consistent with . . . the *health and safety* of the public."[141] The basis for a federal preemption challenge under the AEA rests in part on section 2021(k) which states that "[n]othing in this section shall be construed to *affect* the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards."[142] When read in light of the objectives of the Act, it appears that section 2021(k) was included to preserve a minimal level of safety as established by federal standards rather than to preempt more stringent nonfederal safety standards.[143] This focus on health and safety rather than on exclusive federal control appears throughout section 2021[144] which addresses cooperation between the NRC and the states.

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138. *See id.*

139. Transportation of Radioactive Materials; Memorandum of Understanding, 44 Fed. Reg. 38,690 (1979).

140. 42 U.S.C. §§ 2011-2296 (1976 & Supp. IV 1980).

141. *Id.* § 2013(d) (emphasis added).

142. *Id.* § 2021(k) (emphasis added).

143. Section 122 of the Clean Air Act Amendments of 1977, 42 U.S.C. § 7422 (Supp. IV 1980), allows states to regulate emissions of radioactive air pollutants for the purpose of protecting the public health. This "demonstrates that Congress is not adverse to allowing the states to regulate nuclear energy for the purpose of protecting their citizens from radiation hazards—at least in the context of radioactive air pollution." Tribe, *California Declines the Nuclear Gamble: Is Such a State Choice Preempted?*, 7 ECOLOGY L.Q. 679, 699 (1979).

144. *See* 42 U.S.C. § 2021(a)-(d), (g), (j), (k) (1976).

Subsection (b) of section 2021 allows the NRC "to enter into agreements with the Governor of any State providing for discontinuance of the regulatory authority of the Commission . . .,"[145] while subsection (c) limits subsection (b) by precluding the NRC from discontinuing its authority to regulate certain specified activities.[146] Subsection (c) raises two issues which need resolution: 1) which activities are exclusively the domain of the NRC under subsection (c); and 2) how exclusive is the NRC's authority over the activities not included in subsection (c)?

To determine the scope of the NRC's authority over non-subsection (c) activities, it is important to note that the AEA expresses a strong concern for health and safety. It would be inconsistent with this concern for a court to find that the act preempted all health and safety standards addressing activities not enumerated in subsection (c) which are more rigorous than those of the NRC. Legislative history reveals that the absence of an express preemption clause was not an oversight. Congress' "sole purpose [to delete an express preemption clause] was to leave room for the courts to determine the applicability of particular State laws and regulations dealing with matters on the fringe of the preempted area . . . ."[147]

This is the position that was taken by the dissent in *Northern States Power Co. v. Minnesota*,[148] which stated that "[t]here is nothing in the statute which expresses a clear Congressional intent to prohibit the states from taking additional reasonable steps deemed necessary to control air, water and land pollution whether the pollution be by radiation or otherwise."[149] *Northern States* is one of the leading cases supporting the doctrine of federal preemption under the AEA. The eighth circuit in that case held that the federal government has sole authority to regulate radioactive waste releases from nuclear power plants.[150] The court supported its position by observing that the operation of nuclear facilities is directly addressed by section 2021(c).

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145. *Id.* § 2021(b).

146. See *infra* text accompanying notes 151-52 for a list of these activities.

147. *Federal State Relationships in the Atomic Energy Field, Hearings Before the Joint Comm. on Atomic Energy*, 86th Cong., 1st Sess. 500 (1959) (from a letter by A.R. Luedecke, General Manager, AEC) [hereinafter cited as *Joint Comm. on Atomic Energy*].

148. 447 F.2d 1143 (8th Cir. 1971), *aff'd mem.*, 405 U.S. 1035 (1972).

149. *Id.* at 1157.

150. *Id.* at 1144.

Section 2021(c) precludes the NRC from relinquishing its "authority and responsibility with respect to regulation of—

> (1) the construction and operation of any . . . [nuclear] facility;
>
> (2) the export from or import into the United States of . . . [nuclear materials];
>
> (3) the disposal[151] into the ocean or sea of . . . [nuclear materials];
>
> (4) the disposal of . . . [nuclear materials] . . . ."[152]

Subsection (c) does not address the issue of the transportation of radioactive wastes and the decision in *Northern States* is limited to subsection (c)(1) which is concerned with the operation of nuclear power plants. "[T]he *sole* issue to be determined was whether the federal government . . . had exclusive authority to regulate the radioactive waste releases from nuclear power plants . . . ."[153] Although the court relied on subsection (k) in conjunction with subsection (c) to find preemption, subsection (k) has never been found, by itself, to create federal preemption.[154]

Another clause of subsection (c) authorizes the NRC to require licenses of any parties transferring nuclear materials notwithstanding an agreement with any state relinquishing federal authority pursuant to subsection (b).[155] A letter from the general manager of the Atomic Energy Commission (AEC) (predecessor to the NRC), who proposed subsection (c), to the chairman of the Joint Committee on Atomic Energy, reveals that the clause's objectives were limited.[156] "The Commission would not be authorized under this provision to regulate any radiation hazards which might arise during manufacture, *transportation*, or use of a product."[157]

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151. Although § 2021 does not define "disposal," a related statute addressing low-level radioactive waste policy defines disposal as "the isolation of low-level radioactive waste . . . . " 42 U.S.C. § 2021b(1) (Supp. IV 1980). Additional help in defining disposal can be found in the NRC regulations. " 'Disposal' means the isolation of radioactive wastes from the biosphere." 10 C.F.R. § 60.2(f) (1982). It appears from these definitions that "disposal" is distinct from "transportation for the purpose of disposal," "disposal" being the actual isolation and not the process preceding it.

152. 42 U.S.C. § 2021(c) (1976) (footnote added).

153. *Northern States*, 447 F.2d at 1144 (emphasis added).

154. *See Northern States*, 447 F.2d 1143; Pacific Gas and Elec. Co. v. State Energy Resources and Dev. Comm'n, 103 S. Ct. 1713 (1983); Illinois v. General Elec. Co., 683 F.2d 206 (7th Cir. 1982) (relying on the holding of *Northern States*).

155. 42 U.S.C. § 2021(c) (1976).

156. S. REP. No. 870, 86th Cong., 1st Sess. (from a letter by A.R. Luedecke, General Manager, AEC), *reprinted in* 1959 U.S. CODE CONG. & AD. NEWS 2872, 2881.

157. *Id.* (emphasis added).

This letter demonstrates that transportation could not have been intended to be included under the exclusive agency control of the first part of subsection (c). It would be entirely illogical to grant the agency *exclusive* control of transportation in one clause of subsection (c) and then deny authorization to regulate transportation in the next clause of the same subsection. Obviously, the general manager of the AEC did not intend for transportation of radioactive materials to be the exclusive domain of the Commission.

Legislative history reveals and law review commentators have noted that the AEA was drafted in a manner which leaves room for interpretation. "[W]e have tried to avoid defining the precise extent of preemption [under the AEA], feeling that it is better to leave these kind of detailed questions up to the courts later to be resolved."[158] Further, "the courts . . . are not immune to public sentiment as reflected in continued state efforts to gain a foothold in nuclear health and safety regulation. The pressure may encourage some retreat from the absolutist approach to preemption declared by *Northern States* . . . ."[159]

This view seems to be supported by the Supreme Court in *Pacific Gas and Electric Co. v. State Energy Resources and Development Commission.*[160] The Court affirmed the ninth circuit[161] which had reversed a district court decision[162] invalidating a California statute which had placed a moritorium on the certification of new nuclear power plants until a federally approved method of nuclear waste disposal was created.[163] The district court relied on the decision in *Northern States* which had found federal preemption through the combination of section 2021(c) and section 2021(k).[164] The Supreme Court acknowledged this preemption but found that the California statute was not preempted by subsection (k) because the statute was framed to address the economic considerations flowing from the absence of federally approved radioactive

158. *Joint Comm. on Atomic Energy, supra* note 117, at 494 (statement of Mr. Lowenstein).

159. Note, *Nuclear Power and Preemption: Opportunities for State Regulation*, 27 CLEV. ST. L. REV., 117, 146 (1978).

160. 103 S. Ct. 1713 (1983).

161. Pacific Legal Found. v. State Energy Resources Conservation & Dev. Comm'n, 659 F.2d 903 (9th Cir. 1981).

162. Pacific Legal Found. v. State Energy Resources Conservation & Dev. Comm'n, 472 F. Supp. 191 (S.D. Cal. 1979).

163. CAL. PUB. RES. CODE § 25524.2 (West 1977).

164. *Pacific Legal Found.*, 472 F. Supp. at 197.

waste disposal rather than the health and safety considerations.[165] Where the district court had found that the legislative drafting tended to obscure the purpose and effect of the California statute,[166] the Supreme Court used the same language to avoid preempting the statute.

Although the Supreme Court found that the California moritorium was valid because it was not addressed to health and safety concerns relating to radiation hazards, its decision may still indicate an inclination to find validity for those regulations not expressly preempted. Highway safety regulations may be found valid because transportation appears free from the preemption of section 2021(c). This leaves these regulations on the fringe of the preempted area which may be enough for a court to find section 2021(k) inapplicable.[167]

The Supreme Court decision comes a full ten years after the Court affirmed *Northern States* with a memorandum opinion.[168] It seems that although preemption still exists under the AEA, the doctrine is being applied with some degree of reluctance. *Pacific Gas and Electric*, like *Northern States*, dealt with the construction and operation of nuclear power plants. As stated earlier, this area would seem a more likely candidate for preemption than would the transportation of radioactive wastes because it is specifically addressed by subsection (c).

It should also be noted that the regulation of radioactive waste shipments can be founded on economic grounds as well as health and safety grounds. Nonfederal regulations could address the prevention of the economic hardships which would flow from a radioactive waste transportation accident. This would allow a court to find subsection (k) inapplicable in the same manner as the Supreme Court did in *Pacific Gas and Electric*.

In *Washington State Building & Construction Trades Council v. Spellman*,[169] the ninth circuit affirmed a district court decision[170] invalidating a Washington State act that banned the ship-

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165. *Pacific Gas and Elec.*, 103 S. Ct. at 1727-28.

166. *Pacific Legal Found.*, 472 F. Supp. at 198.

167. *See supra* text accompanying note 147.

168. 405 U.S. 1035 (1972).

169. 684 F.2d 627 (9th Cir. 1982).

170. Washington State Bldg. & Constr. Trades Council v. Spellman, 518 F. Supp. 928 (E.D. Wash. 1981).

ment of radioactive wastes into Washington for storage.[171] As discussed earlier, this act was found invalid as a violation of the commerce clause.[172] The act on its face was border closing which rendered it per se invalid. The ninth circuit also found that the act was preempted by the AEA.[173] Again section 2021(c) and section 2021(k) were relied upon to establish this preemption.

The act banned transportation and *storage* which is distinguishable from regulating only *transportation*. Washington has radioactive waste disposal facilities located within its borders.[174] This act was an attempt to prevent radioactive wastes generated outside the state from being transported into the state with the intent to store or dispose of them. Section 2021(c) precludes the federal government from discontinuing its authority to regulate the disposal of radioactive wastes. If "storage" in the Washington act were to be read as being synonymous with "disposal,"[175] the Washington act would be brought under the preemption of the AEA without affecting the issue of the validity of nonfederal regulations directed at the transportation of radioactive wastes.

A similar decision was handed down by the seventh circuit in *Illinois v. General Electric Co.*[176] An Illinois statute that banned the transportation of spent nuclear fuel into Illinois for disposal[177] was found violative of the commerce clause and preempted by the AEA. As in *Spellman*, the statute in question was a ban and was directed at wastes generated outside the state which were being brought into the state for disposal. This court held that the statute was preempted and supported its decision solely by reference to *Northern States*.[178] Any support found in *Northern States* concerning the transportation of radioactive wastes is merely dicta because that case was concerned with the regulation of emissions from nuclear plants.[179] The decision in *General Electric* thus is virtually unsupported in its holding on preemption and therefore provides little guidance and should be considered accordingly. In any event, this case is readily distinguishable from a challenge to regu-

171. WASH. REV. CODE ANN. § 70.99 (Supp. 1983-84).
172. *See supra* text accompanying notes 86-90.
173. *Spellman*, 684 F.2d at 630.
174. *Id.* at 629.
175. *See supra* note 151.
176. 683 F.2d 206 (7th Cir. 1982).
177. ILL. REV. STAT. ch. 111½, § 230.22 (Supp. 1983-84).
178. Illinois v. General Elec. Co., 683 F.2d at 215.
179. *See supra* note 153 and accompanying text.

lations addressing highway safety in the transport of radioactive wastes because *General Electric*, like *Spellman*, deals with the disposal of radioactive wastes which is expressly addressed in section 2021(c).

If either the ninth circuit had upheld the Washington act or the seventh circuit had upheld the Illiniois act, the decision could have had serious implications for the nuclear industry. Similar acts by other states having radioactive waste disposal sites could have virtually shut down parts of the nuclear industry until every state generating radioactive waste created its own disposal site. Acts intended to increase the safety of radioactive waste transportation would have no such deleterious effect.

Conclusion

As awareness of the health and safety hazards inherent in radioactive waste transportation increases, as well as the number of radioactive waste shipments,[180] the need for more stringent regulations becomes evident. Although the states are better suited to determine the hazards present within their respective borders relative to climate, geography, population, traffic and any other factors concerning highway safety, it is not absolutely necessary that the more rigorous safety regulations come from the state level. The federal government could improve upon its existing regulations, and in so doing, greatly reduce the risk of radioactive waste transportation. But, in the absence of federal action, Vermont and other states must take action to protect the health and safety of their citizens threatened by radiation hazards.[181]

It is time for Vermont to take further action in light of the

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180. *See supra* text accompanying notes 3-10.

181. There are two additional considerations which should be addressed. The first concerns which governmental body should promulgate any new highway safety standards, an agency or the legislature. Agencies are responsive to the will of the executive branch and are only limited by their enabling statutes. Regulations enacted by one administration can be abandoned by the succeeding one. The public interest might be better served if decisions on subjects as politically volatile as any concerning nuclear issues are afforded the greater protection of legislation which cannot be repealed without a majority vote of the legislature.

The second consideration involves an evaluation of the advantages and disadvantages of the different possible modes of transportation. Although this note has been confined to a discussion of highway transportation, it passes no judgment as to the viability of other modes of transportation. It is beyond the scope of this note to compare the merits and deficiencies of the different modes of transportation. It is also beyond the scope of this note to try to resolve all that the regulations should entail. These considerations should be the function of the appropriate governmental body.

mandate created by local ordinances and by the stricter regulations of other states. Radioactive waste shipments will increase as on-site storage capacities at both Vermont Yankee and other nuclear facilities in the region become exhausted. Although the Chalk River shipments have been temporarily discontinued, it is only a matter of time before they will be resumed, because the Chalk River nuclear reactor is still in operation and generating nuclear waste. It is the responsibility of the Vermont Legislature to give its citizenry protection at least equal to that of neighboring states.[182]

Any legislation enacted by Vermont to increase the public safety and offset the economic hardship of a nuclear waste transportation accident should be able to withstand legal challenges if it is carefully drafted. Care should be exercised to avoid creating a ban of any sort and to avoid any discrimination between interstate and intrastate commerce. The drafters should minimize any burden created on interstate commerce and should consider limiting the stated objectives to prevention of the economic hardship which would flow from a nuclear transportation accident.

Even if a Vermont statute were to be found invalid it may still create the desired result of greater protection for the public by its cumulative effect on federal policy in conjunction with the regulations of other states. Inasmuch as both the actions of Vermont citizens and towns and the effect of other states' laws have been forcing Vermont to address the issue of radioactive waste transportation,[183] the actions of the several states can force the federal government to reevaluate this issue.

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182. Although Vermont's recently enacted regulations may preclude any shipments from the Chalk River nuclear facility from passing through the state, this is yet unclear. *See supra* notes 46-50 and accompanying text. In any event, the number of radioactive waste shipments will inevitably increase. Safety regulations should be enacted before any more shipments are routed through Vermont.

183. *See supra* text accompanying notes 59-70.