University of Richmond Law Review

Volume 18 | Issue 3 Article 6

1984

The Role of Localities in the Transportation and Disposal of Nuclear Wastes

Marvin Swift
University of Richmond

Mars M. Wicker
University of Richmond

THE ROLE OF LOCALITIES IN THE TRANSPORTATION AND DISPOSAL OF NUCLEAR WASTES

I. INTRODUCTION

Transportation and disposal of nuclear wastes brings the apprehensions associated with nuclear power into close physical and psychological proximity to many Americans. The subject of transportation comes with its own set of problems, including potential accidents, packaging, routing, security, sabotage, and special agency actions.[1] Common to all of these problems is the element of the unknown. "Clearly nuclear shipments present some kind of public health hazard, not necessarily as great as some other activities do and . . . the nature of that hazard is not known precisely."[2]

Concerns over this unquantifiable, yet certain, danger have been developing against a slowly evolving patchwork of federal regulations. State,[3] city,[4] and county[5] organizations and nonprofit public benefit organizations[6] all seek to keep radioactive wastes away from their citizens.

---

1. Hansell & Sekuler, *Representing States and Citizens in Litigation Involving Nuclear Waste*, 144 LITIGATION AD. PRAC. SERIES NUCLEAR LITIGATION 96 (1979) [hereinafter cited as Hansell & Sekuler, NUCLEAR LITIGATION].

2. Defining the dimensions of a potential radiological transportation accident is difficult, for it goes beyond simply postulating a particular kind of truck or train accident at a given speed. The extent of container failure, and the corresponding amount of radioactivity released, must be assumed. Also, the description must specify the degree of dispersion of the radioactivity (over how large an area with what density), and this obviously depends in part on atmospheric conditions. Other imponderables include the length of time that bystanders are exposed (say, in backed up traffic) before it becomes known that the radioactivity has been released.

R. Norton, *Policy Issues in the Routing of Radioactive Materials Shipments*, 21 NAT. RESOURCES J. 735, 740 (1981).

3. *See* Washington State Bldg. & Constr. Trades Council v. Spellman, 684 F.2d 627, *cert. denied*, 103 S. Ct. 1891 (1983) (Washington State's statutory ban on importation of low-level wastes originating outside of state was found to be violative of commerce clause).

4. New York City Health Code § 175.11 prohibits transportation of radioactive materials in or through the city. This was recently ruled to be preempted by regulations of the Hazardous Materials Transportation Act. *See generally* City of New York v. Department of Transp., 715 F.2d 732 (2d Cir. 1983).

5. *See* Browning-Ferris, Inc. v. Anne Arundel County, 292 Md. 136, 438 A.2d 269 (1981) (County ordinance prohibiting disposal in and transportation through county of various hazardous wastes, including nuclear wastes, found void as burden on interstate commerce). *See also infra* note 245, Spotsylvania County, Va., Ordinance to Regulate Transportation of Radioactive Materials (March 22, 1983); Louisa County, Va., Ordinance on Spent Nuclear Fuel (Dec. 18, 1978).

6. *See* Virginia Sunshine Alliance v. Hendrie, 477 F. Supp. 68 (D.D.C. 1979) (denial of injunction, requested by public benefit organization, against shipping of spent fuel through city of Portsmouth).

The Commonwealth of Virginia has focused concerns over the transportation and disposal of nuclear wastes due to three possible future developments: siting of a low level waste repository in Virginia,[7] shipment of spent fuel from Virginia Electric and Power Company's (VEPCO's) Surry nuclear facility in Surry County, Virginia, to its North Anna plant in Louisa County, Virginia,[8] and consideration of Virginia as a permanent storage site for high level radioactive wastes.[9] An ambiguous situation exists from which state and local governments must try to anticipate problems as well as solutions which will be consistent with federal regulations. This note will discuss federal preemption principles as applied to two local attempts to regulate nuclear waste transportation and disposal. Focus will be first on the Louisa County, Virginia, ordinance banning importation of nuclear wastes into that county, and then on the Spotsylvania County, Virginia, ordinance purporting to regulate shipments of nuclear wastes through that county. This note will trace a line of court decisions interpreting relevant statutes which lead to the conclusion that ordinances such as those of Louisa and Spotsylvania Counties cannot withstand federal preemption challenges. In light of this statutory interpretation, possible alternatives to the ordinance preemption predicaments will be discussed.[10]

II. Classifications of Nuclear Wastes

Any attempt to understand the regulatory maze imposed upon the disposal of commercially[11] generated nuclear waste must begin by distinguishing between the different types of wastes. There are two basic categories of wastes, low level and high level.[12] Within each of these categories

---

7. The Barnwell Nuclear Waste Facility in Barnwell, S.C., used by member states of the South Atlantic States Low Level Waste Compact, will reach projected capacity in 1992. Virginia and other members of the compact are researching new repository locations. Seventeen Virginia counties are being considered as potential sites. Ten counties and two towns have asked to be removed from that list. Richmond News Leader, Feb. 3, 1983, § B, at 1, col. 1.

8. Leon Engle, NRC project director of the VEPCO North Anna Power Station, said that this possibility was contingent upon final determination as to the validity of the Louisa County ordinance banning storage of spent fuel not generated within the county, and upon licensing of augmentation of North Anna's storage capacity and transportation from Surry or North Anna. Telephone interview (Oct. 4, 1983).

9. Pursuant to the Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, 96 Stat. 2201, the federal government is charged with establishing permanent repositories for disposal of high-level nuclear waste. *See infra* notes 125-29 and accompanying text. Because of granite and crystalline formations in the mountains, Virginia has recently been added to the list of states where underground storage might be feasible. Richmond Times Dispatch, Sept. 27, 1983, § A, at 1, col. 1.

10. In light of the number of states which have passed legislation similar to the Louisa County ordinance (*see infra* note 120), the presence of nuclear facilities and waste disposal sites appears to be viewed as undesirable. *But see infra* note 166.

11. Emphasis will be given to transportation of non-military, high-level nuclear wastes.

12. S. Fenn, The Nuclear Power Debate: Issues and Choices 170 (1981).

is a number of subgroups, most easily identified according to the type of packaging that is required by federal regulations for transport.[13]

Low level wastes are radioactive contaminated materials "not classified as high level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material . . . [such as uranium or thorium]."[14] Low level wastes are generated in the course of "manufacturing, power generations, processing, medical diagnosis and treatment, research, or other industrial or commercial activity."[15] Low level wastes incident to power generation at nuclear facilities consist, for example, of contaminated clothing used by workers, and reactor equipment. If low level wastes are released incident to an accident, the risks are minimal.[16] Some types of low level wastes may be shipped in "strong tight packages," while others require Type A packaging.[17]

High level wastes[18] include fission products which emit gamma rays[19] characterized by highly penetrating radiation.[20] They also contain transuranic elements such as plutonium, which does not have highly penetrating radiation but does have high radio-toxicity and may present hazards for up to a million years.[21] High level wastes generally include research and industrial sources as well as spent fuel, and they must be shipped in either Type B or Type B large quantity packaging.[22] This note is concerned

---

13. *See generally* 10 C.F.R. §§ 71.4-.42 (1983).

14. *Id.* § 61.2 (1982).

15. VA. CODE ANN. § 32.1-238.1 (Cum. Supp. 1983).

16. Telephone interview with Mr. A.C. McNeer, Radiological Safety Specialist, Bureau of Radiological Health, Virginia State Board of Health (Sept. 26, 1983).

17. Type A. Designated to withstand the stress of transit under non-accident conditions (e.g., rough handling). Because of the smaller quantities of material permitted in Type A packages, accidents causing damage to such packages would be unlikely to constitute the majority of shipments and must only withstand moderate degrees of stress for such conditions as heat, cold, reduced air pressure, vibration, impact, water, drugs, penetration, and compression. Includes radiopharmaceuticals, research, industrial sources, and some fuel cycle materials.

Commonwealth of Virginia Radiological Emergency Response Plan, app. 14-11 (June 1983) [hereinafter cited as RERP].

18. High-level radioactive waste means: 1) irradiated reactor fuel, 2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and 3) solids into which such liquid wastes have been converted.

10 C.F.R. § 60.2(b)(j) (1983).

19. Gamma rays are electromagnetic radiations of high energy originating in atomic nuclei and accompanying many nuclear reactions. Gamma rays do not consist of particles, have no mass, travel at the speed of light, are highly penetrating, and may cause damage to living tissue. RERP, *supra* note 17, at app. 15-4.

20. S. FENN, *supra* note 12, at 171.

21. *Id.*

22. Type B. Designed for transport of much greater quantities of radioactive materials. In addition to meeting standards for Type B packages, they must withstand drop, punc-

with high level wastes, specifically spent fuel rods incident to generation of electricity at a nuclear power facility.[23]

III. Nuclear Waste Disposal: The Louisa County Ordinance in Light of Current Judicial and Congressional Activity

A. *Louisa County's Spent Fuel Ordinance*

On December 4, 1978, the Board of Supervisors of Louisa County, Virginia, enacted the Spent Fuel Ordinance.[24] The ordinance makes it "unlawful for any person, partnership, corporation or any other entity to store or maintain in Louisa County any spent nuclear fuel or any other radioactive waste materials of similar qualities, except such materials as may result from nuclear fuel being used in Louisa County."[25] The ordinance provides strict penalties for noncompliance[26] and contains a severability clause.[27] In theory, the ordinance would effectively ban, within the

---

ture, thermal, and water immersion stresses that might be experienced under actual or hypothetical transportation accident conditions. They include research and industrial sources and certain fuel cycle materials.

Type B Large Quantity. Designed to withstand the same hypothetical accident stresses as Type B. They may contain thousands of curies and could cause serious health effects if packages are breached. They include research and industrial sources and spent nuclear fuel.

RERP, *supra* note 17, at app. 14-11.

23. "In 1977, President Carter announced that due to concern over the potential for proliferation of nuclear weapons arising from an expanded plutonium-based nuclear economy, spent fuel reprocessing and the development of advanced plutonium-based reactors would be indefinitely deferred in this country." H. Rep. No. 491, 97th Cong., 2d Sess. 3794 (1982). This decision resulted in greatly increased activity in the field of nuclear waste storage because commercial facilities needed permanent storage arrangements since reprocessing would no longer be possible.

24. For purposes of this note it will be assumed that, absent federal regulation to the contrary, Louisa County has the authority to adopt such an ordinance. *See, e.g.*, Va. Code Ann. § 15.1-510 (Repl. Vol. 1981) ("Any county may adopt such measures as it may deem expedient to secure and promote the health, safety and general welfare of the inhabitants of such county . . . ."); Board of Supervisors v. Pumphrey, 221 Va. 205, 207, 269 S.E.2d 361, 362 (1980) ("If both the statute and ordinance can stand together, courts are obliged to harmonize them, rather than nullifying the ordinance."). *Cf.* Va. Code Ann. § 1-13.17 (Repl. Vol. 1979) ("When the council or authorities of any city or town, or any corporation, board, or number of persons, are authorized to make ordinances, bylaws, rules, regulations or orders, it shall be understood that the same must not be inconsistent with the Constitution and laws of the United States or of this State.").

25. *See supra* note 5.

26. "Anyone violating or causing anyone to violate this ordinance shall be fined not more than $1,000.00; and each day that any such violation continues shall be a separate offense." Louisa County, Va., Ordinance on Spent Nuclear Fuel (Dec. 18, 1978).

27. "If any phrase, clause, sentence, part or portion of this ordinance shall be declared unconstitutional or invalid by any valid judgment or decree of a Court of competent jurisdiction, such unconstitutionality or invalidity shall not effect [sic] any of the remaining phrases, clauses, sentences, portions or parts of this ordinance." *Id.*

county, the disposal of spent nuclear wastes[28] that are generated outside of its borders. However, spent nuclear fuel that is generated within the county may be stored or maintained inside its borders.

In 1981, VEPCO applied to the Nuclear Regulatory Commission (NRC) for a license that would permit VEPCO to transport spent nuclear wastes from the Surry plant to the North Anna plant. However, the Louisa County ordinance would prohibit the disposal of spent Surry fuel in Louisa County because the spent nuclear wastes were generated outside the county's borders. VEPCO brought suit against Louisa County alleging that its Spent Fuel Ordinance should be declared unconstitutional because it violated both the supremacy and commerce clauses.[29] On March 4, 1983, United States District Judge D. Dortch Warriner ruled that the county's ordinance was preempted by congressional legislation and that the ordinance prohibitively interfered with interstate commerce.[30]

B. *Preemption Principles*

The federal preemption doctrine arises from the interaction between the supremacy clause of article VI[31] and the tenth amendment's[32] reservation of authority to the states to exercise all powers not delegated to the federal government. The doctrine stands for the principle that a valid exercise of federal power preempts or supersedes an incompatible state law.[33]

The first question of a preemption analysis is whether Congress has validly established federal legislation in the nuclear energy field pursuant to the powers delegated by the Constitution.[34] A brief perusal of congres-

---

28. For purposes of this note the terms spent nuclear waste and high-level nuclear waste will be used interchangeably. For a statutory definition of high-level nuclear waste, see *supra* note 18.

29. *See* Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (E.D. Va. March 4, 1983).

30. *Louisa County* was argued on appeal in the Fourth Circuit on November 3, 1983. The parties settled the case a few months later.

31. This Constitution and the laws of the United States which shall be made, in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

U.S. CONST. art. VI, cl. 2.

32. "The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people." U.S. CONST. amend. X.

33. *See generally* Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824); J. NOWAK, R. ROTUNDA, J. YOUNG, CONSTITUTIONAL LAW 267-79 (1978); L. TRIBE, AMERICAN CONSTITUTIONAL LAW § 6-23 (1978).

34. *See* Northern States Power Co. v. Minnesota, 447 F.2d 1143, 1147 (8th Cir. 1971), *aff'd mem.*, 405 U.S. 1035 (1972).

sional findings makes it apparent that the power to develop and regulate nuclear energy stems from the commerce clause, the war powers clauses, and the authority to promote the general welfare and to protect the general public.[35] Accordingly, the majority of commentators[36] and courts[37] have assumed valid congressional authority to regulate the nuclear energy industry.

The second inquiry is whether Congress has expressly preempted state and local authority to regulate in a particular field.[38] If compliance with both federal and state law is impossible because the laws are in conflict, no finding of congressional intent need be ascertained, and the state or local law is preempted.[39] Absent any direct conflict between federal and state law, a court must determine whether Congress has manifested an express intent to preempt state law in a given area.[40] If express intent to preempt is found, state law must give way to congressional authority.

If no express intent is found, Congress may nevertheless be said to have

---

35. The Atomic Energy Act of 1954 indicates that:

> Atomic energy is capable of application for peaceful as well as military purposes. It is therefore declared to be the policy of the United States that — (a) the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security; and (b) the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living and strengthen free competition in private enterprise.

42 U.S.C.A. § 2011(a), (b) (West 1973). *See also* Estop & Aldermann, *State Control of Radiation Hazards: An Intergovernmental Relations Problem*, 60 MICH. L. REV. 41, 44-54 (1961). *But see* Jaksetic, *Constitutional Dimensions of State Efforts to Regulate Nuclear Waste*, 32 S.C.L. REV. 789, 849 (1981) ("[T]he majority view that the federal government can preempt wholly the field of radiation hazards regulation is based on an inadequate analysis of the constitutional bases for such an assertion of federal authority.").

36. *See, e.g.*, Esgain, *State Authority and Responsibility in the Atomic Energy Field*, 1962 DUKE L.J. 163; Green, *Nuclear Technology and the Fabric of Government*, 33 GEO. WASH. L. REV. 121, 124-25 (1964); Helman, *Pre-emption: Approaching Federal-State Conflict Over Licensing Nuclear Power Plants*, 51 MARQ. L. REV. 43 (1967); Murphy & La Pierre, *Nuclear "Moratorium" Legislation in the States and the Supremacy Clause: A Case of Express Preemption*, 76 COLUM. L. REV. 392 (1976).

37. *See, e.g.*, Simmons v. Arkansas Power & Light Co., 655 F.2d 131, 135 (8th Cir. 1981) ("Congress, through its power to regulate interstate commerce and provide for the national defense and general welfare, clearly can enact legislation governing the use of nuclear energy."); Minnesota v. United States Nuclear Regulatory Comm'n, 602 F.2d 412 (D.C. Cir. 1979); Natural Resources Defense Council v. United States Nuclear Regulatory Comm'n, 582 F.2d 166 (2d Cir. 1978); Washington State Bldg. & Constr. Trades Council v. Spellman, 518 F. Supp. 928, 931 (E.D. Wash. 1981), *aff'd*, 684 F.2d 627 (9th Cir. 1982), *cert. denied*, 103 S. Ct. 1841 (1983); United States v. City of New York, 463 F. Supp. 604, 607 (S.D.N.Y. 1978).

38. *Northern States*, 447 F.2d at 1146.

39. *See* Florida Lime & Avocado Growers v. Paul, 373 U.S. 132, 142-43 (1963), *reh'g denied*, 374 U.S. 858 (1963).

40. *Northern States*, 447 F.2d at 1146.

impliedly preempted state law where it has exercised a "scheme of regulation" in a particular field.[41] "[W]here the federal government, in the exercise of its superior authority in this field, has enacted a complete scheme of regulation . . . states cannot, inconsistently with the purpose of Congress, conflict or . . . complement the federal law, or enforce additional or auxiliary regulations."[42] In *Rice v. Santa Fe Elevator Corp.*,[43] the Supreme Court indicated that the goal in each case was to determine Congress' purpose in enacting the legislation.

> Such a purpose may be evidenced in several ways. The scheme of federal regulation may be so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it. Or the Act of Congress may touch a field in which the federal interest is so dominant that the federal system will be assumed to preclude enforcement of state laws on the same subject. Likewise, the object sought to be obtained by the federal law and the character of obligations imposed by it may reveal the same purpose. . . . Or the state policy may produce a result inconsistent with the objective of the federal statute.[44]

The preemption doctrine consists of a set of unstructured principles which, as the Supreme Court admits, provides no "rigid formula or rule which can be used as a universal pattern to determine the meaning and purpose . . . of Congress."[45] The Court uses various terms in attempts to pinpoint how federal law preempts state or local law,[46] but acknowledges that "[i]n the final analysis, there can be no one crystal clear distinctly marked formula."[47] However, the Court does assert that its "primary function is to determine whether . . . [state] law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[48]

To determine the validity of congressional preemption in the nuclear field, the history of congressional activity in the area of the nuclear industry should be examined.

---

41. *See, e.g.*, Ray v. Atlantic Richfield Co., 435 U.S. 151, 157 (1978); Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947).

42. Hines v. Davidowitz, 312 U.S. 52, 66-67 (1941).

43. 331 U.S. 218 (1947).

44. *Id.* at 230 (citations omitted).

45. *Hines*, 312 U.S. at 67.

46. "This Court, in considering the validity of state laws in the light of treaties or federal laws touching the same subject, has made use of the following expressions: conflicting; contrary to; occupying the field; repugnance; difference; irreconcilability; inconsistency; violation; curtailment; and interference." *Id.*

47. *Id.*

48. *Id.*

C. *Federal Regulation in the Nuclear Industry*

1. Evolution of the Atomic Energy Act

Atomic energy became the subject of comprehensive federal legislation for the first time with the enactment of the Atomic Energy Act of 1946.[49] Congress' initial regulatory concerns were for the common defense and security in the development and use of atomic energy, because its primary use at that time was for military purposes.[50] These militaristic interests led the federal government to retain complete control over the entire spectrum of the nuclear industry.[51]

Congressional recognition of the advancing nuclear energy technology in the private sector led to the passage of the Atomic Energy Act of 1954.[52] This Act is the foundation for the pervasive scheme of federal regulations governing all phases of "construction and operation of any production or utilization facility."[53] Its purpose[54] was to encourage private industry in the development of nuclear energy for peaceful purposes[55] and to insure that its promotion proceeded safely.[56] The Act established the Atomic Energy Commission (AEC) which, in turn, gave authority to private concerns to develop and utilize nuclear technology. The AEC, through the establishment of the Nuclear Regulatory Commission (NRC), retained exclusive control through strict licensing procedures.[57] This retention of complete authority by the AEC caused dissatisfaction and frustration in many state legislatures, which ultimately led to the adoption, by thirteen states, of model acts for concurrent regulation.[58]

2. Section 274

In 1959, Congress amended the 1954 Act by adding section 274.[59] The

---

49. 60 Stat. 755 (1946), 42 U.S.C. §§ 1801-1819 (1952).

50. *See supra* note 35. (Remarks referring to the Atomic Energy Act of 1954 are likewise applicable to the 1946 Act in those respects which concern the military.)

51. For an overview of regulation under the 1946 Act, see Newman, *The Atomic Energy Industry: An Experiment in Hybridization*, 60 YALE L.J. 1263 (1951).

52. 42 U.S.C. §§ 2011-2296 (1976 & Supp. V 1981).

53. *Northern States*, 447 F.2d at 1149 (quoting 42 U.S.C. § 2021(c) (1959)).

54. For an overview of the history and congressional purpose of the 1954 Act, see 1954 U.S. CODE CONG. & AD. NEWS 3459.

55. 42 U.S.C. § 2011 (1976).

56. *Id.* § 2012(e).

57. The Atomic Energy Commission was abolished in 1974. *See* Pub. L. No. 93-438, 88 Stat. 1233. It was replaced with the Energy Research and Development Administration (42 U.S.C. § 5814 (1976 & Supp. V 1981)) and the Nuclear Regulatory Commission (42 U.S.C. § 5841 (1976 & Supp. V 1981)). For current licensing procedures, see 10 C.F.R. § 2913, pt. 2, app. A (1983).

58. Esgain, *supra* note 36, at 171.

59. 42 U.S.C.A. § 2021 (West 1973 & Supp. 1984).

passage of the amendment created the states' first opportunity for valid regulation in the nuclear energy field. At this point the crux of the preemption analysis emerges.

Section 274 recognizes the interests of state governments,[60] the need for cooperation between federal and state governments,[61] and provides for "turnover agreements" whereby the states may assume, with the federal government's approval, specified authority held by the AEC.[62] The thrust of section 274 is contained in subsections (b)[63] and (c).[64] Subsection 274(b) allows the NRC to enter into agreements with the states to discontinue the NRC's authority over the regulation of byproduct,[65] source,[66] and special nuclear material[67] not sufficient to form a critical mass.[68]

---

60. *Id.* § 2021(a)(1).

61. *Id.* § 2021(a)(2).

62. *Id.* § 2021(b).

63. Except as provided in subsection (c) of this section, the Commission is authorized to enter into agreements with the Governor of any State providing for discontinuance of the regulatory authority of the Commission under subchapters V, VI and VII of this chapter, and section 2201 of this title, with respect to any one or more of the following materials within the State —
(1) byproduct materials as defined in section 2014(e)(1) of this title;
(2) byproduct materials as defined in section 2014(e)(2) of this title;
(3) source materials;
(4) special nuclear materials in quantities not sufficient to form a critical mass.

Id.

64. No agreement entered into pursuant to subsection (b) of this section shall provide for discontinuance of any authority and the Commission shall retain authority and responsibility with respect to regulation of —
(1) the construction and operation of any production or utilization facility;
(2) the export from or import into the United States of byproduct, source, or special nuclear material, or of any production or utilization facility;
(3) the disposal into the ocean or sea of byproduct, source, or special nuclear waste materials as defined in regulations or orders of the Commission;
(4) the disposal of such other byproduct, source, or special nuclear material as the Commission determines by regulation or order should, because of the hazards or potential hazards thereof, not be so disposed of without a license from the Commission.

Id. § 2021(e).

65. For examples of byproduct materials, see *Hearings before the Joint Comm. on Atomic Energy on Federal-State Relationships in the Atomic Energy Field*, 86th Cong., 1st Sess. 303 (1959) [hereinafter cited as *Federal-State Relationships*]. *See also supra* notes 11-21 and accompanying text.

66. Source material is defined as:
(1) [U]ranium, thorium, or any other material which is determined by the Commission pursuant to the provisions of section 2091 of this title to be source material; or
(2) ores containing one or more of the foregoing materials, in such concentration as the Commission may by regulation determine from time to time.

42 U.S.C.A. § 2014(z) (West 1973).

67. Special nuclear material is defined as:
(1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 2071 of

However, subsection 274(c) specifically excludes a major portion of the NRC's authority from being included in these "turnover agreements" with the states. Subsection 274(c) provides that the NRC cannot enter into agreements with the states concerning "the construction and operation of any production[69] or utilization[70] facility." Subsection 274(c) also withholds the authority to dispose of nuclear material deemed to be sufficiently hazardous.[71] This retention of authority by the NRC reflects Congress' strong intent to regulate the safety aspects[72] of both the operation of nuclear generating facilities and the high-level waste[73] generated by such facilities, in addition to the intent to retain control for purposes of the common defense and security.[74] However, congressional concern for

---

this title, determines to be special nuclear material . . .; or (2) any material artificially enriched by any of the foregoing, but does not include source material."

Id. § 2014(aa).

68. For a detailed definition of critical mass, see 10 C.F.R. § 150.11 (1983).

69. 42 U.S.C. § 2021(c)(1). Production facility is defined as:

(1) any equipment or device determined by rule of the Commission to be capable of the production of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission.

42 U.S.C.A. § 2014(v) (West 1973).

70. *Id.* § 2021(c)(1). Utilization facility is defined as:

(1) Any equipment or device, except an atomic weapon, determined by rule of the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public . . . .

Id. § 2014(cc).

Thus, by excluding a production or utilization facility from being included in a subsection (b) turnover agreement, the states are precluded under (c) from regulating nuclear power plants.

71. These sufficiently hazardous materials include high level radioactive material, so even in a turnover agreement, according to subsection (b), spent nuclear fuel would not be included. Current legislative history confirms that the "policy of the Federal Government has always been that the safe disposal of high-level radioactive waste is to be accomplished under Federal management." 1980 U.S. CODE CONG. & AD. NEWS 6933, 6934. *See also infra* note 132 and accompanying text.

72. *See supra* note 56 and accompanying text.

73. Although the scope of this note is confined to high-level waste disposal, Congress has passed significant legislation concerning state regulation of low-level waste disposal. In 1980 Congress enacted the Low-Level Radioactive Waste Policy Act, Pub. L. No. 96-573, 94 Stat. 3347 (1980) (codified at 42 U.S.C.A. §§ 2021b-2021d (West 1973 & Supp. 1984)). *See supra* notes 14-17 and accompanying text for definition of low-level radioactive waste. The Act provides for the complete turnover of low-level waste responsibilities to the states by 1986 provided that the state has entered into an interstate compact with other surrounding states. *Id.* § 2021d. For an example of such a compact, see VA. CODE ANN. § 32.1-238.6:1 (Cum. Supp. 1983).

For discussion of federal and state responsibilities in relation to the Low-Level Radioactive Waste Policy Act, see Comment, *Congressional Recognition of State Authority Over Nuclear Power and Waste Disposal*, 58 CHI.-KENT L. REV. 813, 830 (1982).

74. *See Federal-State Relationships, supra* note 65, at 310 (statement of Mr. Lowenstein,

safety seems to be taken for granted by the NRC.[75]

Subsection 274(k) is the other key link in the nuclear activities preemption controversy. It provides 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."[76] The statutory construction of subsection (k),[77] coupled with Congress' strong intent to regulate for health and safety reasons, results in the logical conclusion that states or localities are not preempted from regulating for purposes other than protection against health and safety hazards from radiation. The legislative history of subsection (k) reveals that

> [it] is intended to make it clear that the bill does not impair the State authority to regulate activities of AEC licenses for the manifold health, safety, and economic purposes other than radiation protection. As indicated elsewhere, the Commission has exclusive authority to regulate for protection against radiation hazards until such time as the State enters into an agreement with the Commission to assume such responsibility.[78]

At least one other section of the Act reveals an express provision that allows for retention of traditionally broad authority by state and local governments over the regulation of public utilities.[79]

Office of the Attorney General).

75. In spite of major nuclear accidents such as Three Mile Island and a leak at the Hanford disposal site in Washington State in which over 155,000 gallons of high-level waste were missing from containers, NRC findings show that the disposal of high-level waste is both feasible and reasonably safe:

> (1) The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible . . . .
> (3) The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level radioactive waste and spent fuel.
> (4) The Commission finds reasonable assurances that, *if necessary*, spent fuel can be stored safely and without significant environmental effects for at least 30 years beyond the expiration of reactor operating licensees at reactor spent-fuel storage basins, or at either onsite or offsite independent spent fuel storage installations.
> (5) The Commission finds reasonable assurances that safe independent onsite or offsite spent fuel storage will be available *if such storage capacity is needed.*

Rulemaking on the Storage and Disposal of Nuclear Waste, 2 NUCLEAR REG. REP. (CCH) ¶ 30,788.02 at 30, 816 (June 20, 1983) (emphasis added).

76. 42 U.S.C. § 2021(k) (1976).

77. *See infra* text accompanying notes 111-18. .

78. S. REP. No. 870, 86th Cong., 1st Sess. 12, *reprinted in* 1959 U.S. CODE CONG. & AD. NEWS 2872, 2882-83.

79. *See* 42 U.S.C. § 2018 (1976) ("Nothing in this chapter shall be construed to affect the authority or regulations of any Federal, State or local agency with respect to the generation, sale or transmission of electric power produced through the use of nuclear facilities licensed by the Commission.") In 1965, the following amendment was added to § 2018: "Provided, That this section shall not be deemed to confer upon any Federal, State or local agency any authority to regulate, control, or restrict any activities of the Commission." 42 U.S.C. § 2018 (1976 & Supp. V 1981).

3. Preemption Analysis of Section 274

Public utilities traditionally have been controlled by state and local governments. The "franchise to operate a public utility . . . is a special privilege which . . . may be granted or withheld at the pleasure of the State."[80] Accordingly, since "Congress legislated here in a field which the states have traditionally occupied . . . we start with the assumption that the historic police powers of the State were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress."[81] In analyzing the plain words of section 274, there is neither a provision that mandates construction of a nuclear generating facility by the states or localities nor a provision compelling them to provide waste disposal sites. In reviewing the legislative history of section 274, the question of express preemption was considered and specifically rejected by both the AEC and Congress.[82] Congress preferred to adopt a purposefully vague statute which would tend to cover all the "gray areas" not specifically included in the statute.[83] The testimony of Robert Lowenstein, of the Office of General Counsel, AEC, indicates that,

> [w]e thought that this act without saying in so many words did make clear that there is [an area of] preemption here, but we have tried to avoid defining the precise extent of that preemption, feeling that it is better to leave

---

80. Frost v. Corporation Comm'n of Okla., 278 U.S. 515, 534 (1929) (Brandeis, J., dissenting) (*quoted in* Pacific Gas & Elec. v. State Energy Resources Conservation & Dev. Comm'n, 103 S. Ct. 1713, 1723 (1983)).

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

82. In the hearings before the Joint Committee on Atomic Energy, Mr. Lowenstein, an attorney for the AEC, was questioned specifically as to the preemptive effect of § 2021:

> Mr. Toll: On that question [regulation of nuclear materials through interstate commerce], and also on the question of reactors, does this bill go far enough? Does it really clear the air as to whether or not the States have authority to license reactors and control shipments in interstate commerce? Should there be a statement that these activities are expressly preempted to the Federal Government?
>
> Mr. Lowenstein: Under this bill which gives explicit reference to the interests of the Federal and State Governments, we think it would be fairly apparent, as many of us now believe under the existing Atomic Energy Act, that there has been an area of preemption. We considered the desirability of writing the kind of provision you suggest, Mr. Toll, and we decided against it, primarily for the reason that it is practically impossible to try to define, taking into account all of the various gray areas and special circumstances that might arise, where these areas of preemption should begin or end.

See Federal-State Relationships, supra note 65, at 307.

83. The testimony of Mr. Lowenstein of the Office of General Counsel, AEC, regarding § 274(k) reveals that

> Subsection (k) is included in order to provide formal statutory recognition of the fact that even with respect to the reserved areas which the Commission would continue to regulate, and which to *some* extent would be preempted from State regulation, nonetheless *the States have a very real interest in these activities.*

Id. at 312 (emphasis added).

> these kinds of detailed questions perhaps up to the courts later to be resolved.[84]

Even though the AEC and Congress intended the courts to define the precise extent of federal preemption, there is evidence that an overall preemptive effect was desired.[85] However, Congress is precluded from preempting state authority to regulate those matters that do not concern the protection against radiation hazards.[86] Due to section 274's purposefully vague construction and legislative history, a large gray area is left open as to whether a state or locality may enact a law that ultimately affects an AEC licensee's essential operation, even though the law was enacted for purposes other than protection against radiation hazards. Nonetheless, a few basic conclusions concerning section 274's preemptive effect may be articulated: 1) express preemption of state and local law was not intended;[87] 2) an overall scheme of preemption was desired;[88] 3) the state's traditional power to regulate public utilities was to remain intact provided that the federal government retained control over protection against radiation hazards;[89] 4) the gray area of state involvement was to be narrowly construed but interpreted in light of subsection 274(k)'s "purposes other than radiation" clause;[90] and 5) the precise extent of federal preemption was to be left to the courts to be resolved later.[91]

D. *The Courts Speak*

1. The *Northern States* Decision

The leading court decision concerning the scope of state regulation over nuclear generating facilities is *Northern States Power Co. v. Minnesota.*[92]

---

84. *Id.* at 308.

85. A comment by the joint committee indicates that Section 274 did not intend
> to leave any room for the exercise of dual or concurrent jurisdiction by States to control radiation hazards by regulating byproduct, source, or special nuclear materials. The intent is to have the material regulated and licensed either by the Commission, or by the State and local governments, but not by both.

S. REP. No. 870, 86th Cong., 1st Sess. 12, *reprinted in* 1959 U.S. CODE CONG. & AD. NEWS 2872, 2879.

86. *See supra* notes 78-79 and accompanying text. *See also infra* notes 111-18 and accompanying text.

87. *See supra* note 82 and accompanying text.

88. *See supra* notes 83-85 and accompanying text.

89. *See supra* note 79 and accompanying text.

90. *See supra* notes 78-79 and accompanying text.

91. *See supra* text accompanying note 84.

92. 447 F.2d 1143 (8th Cir. 1971), *aff'd mem.*, 405 U.S. 1035 (1972). It is interesting to note that seven years before the *Northern States* decision, the California Supreme Court in Northern Cal. Ass'n to Preserve Bodega Head & Harbor Inc. v. Public Utils. Comm'n, 61 Cal. 2d 126, ____, 390 P.2d 200, 204, 37 Cal. Rptr. 432, 436 (1964) held that § 2021 had not entirely preempted state authority to regulate location of atomic reactors when those regulations are based upon safety measures enacted for purposes other than the protection against

For many states and localitites, the *Northern States* decision dealt a serious blow to attempts to regulate hazardous radioactive materials.[93]

The issue presented to the *Northern States* court was whether the NRC "had the exclusive authority to regulate the radioactive water releases from nuclear power plants so as to preclude Minnesota from exercising any regulatory authority over the release of such discharges . . . ."[94] In affirming the decision of the district court,[95] the appellate court declared that Minnesota was preempted from exercising any regulatory powers over the Northern States nuclear power plant.[96] After finding that Congress exercised valid constitutional authority to regulate nuclear energy, the court stated that no provision in the Atomic Energy Act expressly preempted state authority to regulate radiation emissions from nuclear power plants.[97] Additionally, the court articulated four key factors in determining whether Congress had impliedly preempted state authority:

> (1)[T]he aim and intent of Congress as revealed by the statute itself and its legislative history . . .; (2) the pervasiveness of the federal regulatory scheme as authorized and directed by the legislation . . .; (3) the nature of the subject matter regulated and whether it is one which demands "exclusive federal regulation in order to achieve uniformity vital to national interests". . .; and (4) "whether, under the circumstances of [a] particular case, [state] law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[98]

The court, basing its conclusion on the premise that Minnesota was preempted from asserting any regulatory control whatsoever, absent a turnover agreement as provided by section 274(b), determined that Congress had impliedly preempted regulation by Minnesota under any or all of these factors.[99] It indicated that "the mere enactment of elaborate and

---

radiation hazards.

93. A majority of cases regarding the scope of state involvement in the nuclear field have tended to follow the precedent set by *Northern States* closely. "Nuclear preemption cases that have reached the courts subsequent to *Northern States* have followed the case very closely, especially its reading of the legislative history." Comment, *State Regulation of Nuclear Power: Facing the Preemption Challenge from a New Perspective*, 76 NW. U.L. REV. 134, 156 (1981). *But see* Meek, *Nuclear Power and State Radiation Protection Measures: The Importance of Preemption*, 10 ENVTL. L. 1, 7-9 n.25 (1979) (Courts have been following *Northern States* with the deference accorded a Supreme Court case. This should no longer be the rule because, according to Mandel v. Bradley, 432 U.S. 173 (1977), a summary affirmation is only an agreement by the Supreme Court on the lower court's decision and not on the rationale used by the lower court.).

94. *Northern States*, 447 F.2d at 1144.

95. Northern States Power Co. v. Minnesota, 320 F. Supp. 172 (D. Minn. 1970).

96. *Northern States*, 447 F.2d at 1154.

97. *Id.* at 1147.

98. *Id.* at 1146-47 (citations omitted).

99. *Id.* at 1152-53.

detailed legislation . . . in itself evinces an inescapable implication that the federal government possessed exclusive authority absent the agreements authorized by the 1959 amendment."[100] The court also, unfortunately, interpreted section 274(k) as being applicable only when the states had entered into a turnover agreement with the federal government.[101] However, this restriction on 274(k) has been specifically rejected by at least one court.[102]

Close scrutiny of the *Northern States* opinion makes clear that the court's reading of section 274(k) is, at least, questionable. As mentioned above, section 274(k) indicates that "[n]othing in this section shall be construed to affect the authority of any state or local agency to regulate activities for *the purposes other than the protection against radiation hazards*."[103] However, in restating this section, the court indicated that "[t]he only logically acceptable reason for inclusion of subsection (k) . . . was to make it clear that Congress was not by subsection (c) . . . in any way further limiting the power of the states to regulate activities, other than radiation hazards . . . ."[104] It is evident from this statement that the *Northern States* court recognized the radiological/nonradiological dichotomy of section 274(k), but nevertheless neglected to incorporate the purpose of the Minnesota statute into its analysis. A portion of section 274's legislative history indicates that a purpose inquiry should be made.[105] Therefore, by looking only to the statute's effect, the court thwarted Minnesota's attempt to regulate an industry it has traditionally controlled. A majority of decisions subsequent to *Northern States* have followed its radiological/nonradiological dichotomy of section 274 and have neglected to look to the underlying purpose of the state or local statute.[106]

---

100. *Id.* at 1150.

101. *Id.* at 1149-50.

102. *See, e.g.*, Illinois v. Kerr-McGee Chem. Corp., 677 F.2d 571, 580 (7th Cir. 1982), *cert. denied*, 103 S. Ct. 464 (1982). ("[R]egardless of whether or not a state has entered into a § 2021(b) agreement with the Commission, the state retains its authority to regulate nonradiation hazards."). Although a majority of the courts hold that states retain regulation over nonradiological matters absent a turnover agreement, the *Northern States* general analysis is still followed.

103. 42 U.S.C. § 2021(k) (1976) (emphasis added).

104. *Northern States*, 447 F.2d at 1150 (emphasis added).

105. For example in the absence of [regulation of radiation hazards], the Courts might have greater latitude in sustaining certain types of zoning requirements which have *purposes* other than control of radiation hazards, even though such requirements might have an incidental effect upon the use of source, byproduct, and special nuclear material, licenses by the Commission.

Federal-State Relationships, supra note 65, at 500 (emphasis added). Even though the *Northern States* court stated in passing that Minnesota was attempting to regulate for radiation purposes, it did not include the purpose of the statute in its framework of analysis.

106. *See, e.g.*, Vermont Yankee v. National Resources Defense Fund, 435 U.S. 519 (1978); Calvert Cliffs Coordinating Comm. v. United States Atomic Energy Comm'n, 449 F.2d 1109

In another line of decisions, courts have expressed a greater willingness to look to the purpose of the state or local statute to determine if it was enacted for purposes other than regulation of radiation hazards. In *Marshall v. Consumers Power Co.*,[107] the Michigan Court of Appeals reversed a lower court decision holding that Michigan could not regulate nuclear generating facilities for either radiological or nonradiological matters. The *Marshall* court indicated that Congress recognized the states' traditional role in protecting the health, safety and welfare of its citizens and was careful not to interfere with state authority over nonradiological problems.[108] The court ultimately held that Michigan could prohibit the construction and operation of the nuclear power plant if the state did so for nonradiological purposes.[109] This view is consistent with both the modern trend of judicial decisions and current congressional legislation.[110]

2. The Supreme Court Draws a Firm Line

The most recent Supreme Court decision seems to draw a firm line, much to the frustration of some states and localities, as to what aspects of nuclear energy a state may regulate. In *Pacific Gas & Electric v. State Energy Resources Conservation & Development Commission*,[111] the Supreme Court affirmed a court of appeals decision[112] upholding the validity of a California statute [113] which imposed a moratorium on the construc-

---

(D.C. Cir. 1971); Commonwealth Edison Co. v. Pollution Control Bd., 5 Ill. 3d 800, 284 N.E.2d 342 (1972); Van Dissel v. Jersey Cent. Power & Light Co., 152 N.J. Super. 391, 377 A.2d 1244 (1977); New Jersey Dep't of Envtl. Protection v. Jersey Cent. Power & Light Co., 133 N.J. Super. 375, 336 A.2d 750 (1975), *rev'd*, 69 N.J. 102, 351 A.2d 337 (1976).

107. 65 Mich. App. 237, 237 N.W.2d 266 (1976).

108. *Id.* at ____, 237 N.W.2d at 276. According to the court, regulation over nonradiological matters included, among other things, "zoning, local pollution, building and equipment codes on nonradiation machinery and working conditions of plant employees." *Id.* (footnotes omitted).

109. *Id.* at ____, 237 N.W.2d at 277 ("We read *Northern States* as holding that state control over construction and operation is prohibited only as to radiation hazards.").

110. *See, e.g.*, *Kerr-McGee*, 677 F.2d 571 (AEA has expressly and impliedly preempted regulation by states only for purposes of radiation hazards associated with nuclear materials.); South Dakota Pub. Util. Comm'n v. FERC, 690 F.2d 674 (8th Cir. 1982) (court upheld South Dakota's refusal to allow FERC to build a nuclear plant based upon economic considerations); Pacific Legal Found. v. State Energy Resources Conservation & Dev. Comm'n, 659 F.2d 903 (9th Cir. 1981), *aff'd sub nom.* Pacific Gas & Electric v. State Energy Resources Conservation & Dev. Comm'n, 103 S. Ct. 1713 (1983) (upholding a California statute enacted for economic purposes imposing a moratorium on the construction of nuclear power plants). *See also* NRC Authorization Act for Fiscal Year 1980, Pub. L. No. 96-295, 94 Stat. 780 (states are allowed to impose regulations relating to land use and siting requirements for nuclear power plants provided the regulations are identical to or more stringent than federal regulations). *See infra* note 143 and accompanying text.

111. 103 S. Ct. 1713 (1983).

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

113. CAL. PUB. RES. CODE § 25524.2 (West 1977 & Supp. 1982).

tion of nuclear power plants. The Court found that the statute was enacted pursuant to the state's economic powers over nuclear wastes as opposed to the protection against health and safety hazards due to radiation.

The Court held that Congress "intended that the federal government should regulate the radiological aspects involved in the construction and operation of a nuclear power plant, but that the states retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, cost and other related state concerns."[114] The Court agreed with the court of appeals' finding that the "uncertainties in the nuclear fuel cycle [i.e., problems concerning a permanent solution to nuclear waste disposal] make nuclear power an uneconomical and uncertain source of energy"[115] and stated that the NRC's regulatory authority is not based upon economic considerations.[116] Despite argument by Pacific Gas and Electric that the economic reasons for the enactment of the statute were mere pretexts,[117] the Court refused to attempt to ascertain California's "true motive" and upheld the statute.[118]

E. *Application of Principles to Louisa County's Attempt to Regulate Nuclear Waste Disposal*

Under the principles articulated in the *Northern States* decision,[119] the Louisa County ordinance[120] on appeal would probably be declared uncon-

---

114. *Pacific Gas & Electric*, 103 S. Ct. at 1723.

115. *Id.* at 1720 (citing *Pacific Legal Found.*, 659 F.2d at 925).

116. *Pacific Gas & Electric*, 103 S. Ct. at 1724. *See also* 10 C.F.R. § 8.4 (1983).

117. Pacific Gas & Electric argued that the law was actually intended to protect against radiation hazards, but this intent was disguised as an economic consideration.

118. The Court dismissed Pacific Gas & Electric's pretext arguments for two reasons: 1) motive inquiry is futile because it is too difficult to determine which legislator voted for what reason, and 2) motive inquiry is pointless when states are given the authority to regulate nuclear power plants for nonradiological purposes. *Pacific Gas & Electric*, 103 S. Ct. at 1728.

119. *See supra* notes 92-106 and accompanying text.

120. A number of states have passed laws concerning the regulation of nuclear generating facilities and nuclear waste disposal. *See, e.g.*, COLO. REV. STAT. § 25-11-202 (Repl. Vol. 1982) ("Disposal of any radioactive waste which originates or has been used outside this state and has not been used in this state is prohibited . . . ."); HAWAII CONST. art. XI § 8 (Supp. 1982) ("No nuclear fission plant shall be constructed or radioactive material disposed of in the state without the prior approval of a ⅔ vote in each house of the legislature."); MONT. CODE ANN. § 75-3-302(1) (1981) ("No person may dispose of large quantities of radioactive material, byproduct material or special nuclear material within the State of Montana."); N.H. REV. STAT. ANN. § 125:77-6 (Repl. Vol. 1977 & Supp. 1982) (No person shall receive, store or dispose of radioactive waste in the state or within the coastal jurisdiction of the state. Nothing in this subdivision shall be construed to prohibit the on-site storage of spent nuclear fuel rods nor in any way [conflict with the AEC] provided however, *under no circumstances shall spent nuclear fuel rods from any other plant or storage facility be received for on-site storage.*) (emphasis added); OR. REV. STAT. § 469.525 (1981).

stitutional because, in effect, it regulates the construction and operation of VEPCO's nuclear power plant. However, *Pacific Gas & Electric* indicates that the purpose of the statute must be determined before federal preemption can be found. The Louisa County Board of Supervisors' "honest and legitimate" concerns are, according to an internal VEPCO memorandum, based substantially upon economic considerations.[121] This would seem to legitimize Louisa County's attempt to regulate nuclear waste disposal. However, dicta from the Supreme Court in *Pacific Gas & Electric* indicates that a state or locality cannot regulate the construction and operation[122] of a nuclear generating facility even if the state statute is purportedly enacted for purposes other than the protection against radiation hazards.[123] The Court is drawing a firm line, allowing the state to decide, based upon nonradiological purposes, i.e., actual need and economic considerations, whether nuclear power plants will be built. However, once state authorization to build has been obtained, the federal government, without interference from state or local governments, regulates *how* nuclear power plants will be constructed and maintained.[124] There-

---

121. Those considerations are

> 1. Ability to safely transport fuel [drain on county resources in the event of an accident involving transportation of spent nuclear fuel];
>
> 2. Effect on North Anna of Surry fuel storage [shipment of Surry fuel may reduce the operating life of North Anna; this in turn would cause a premature closing which would mean the loss of tax revenue and jobs];
>
> 3. Possibility of Louisa County becoming a site for national storage and reprocessing [damage County's reputation for having an unspoiled environment and diminishing its ability to attract new industry and residents];
>
> 4. Being squeezed by State and Federal governments into solving a problem not of their making [Louisa County should not be forced by federal government to assume a responsibility for solving a spent fuel storage problem it did not create].

See Brief of Appellants at 3-4, Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (4th Cir. Mar. 4, 1983) (discussing a memorandum from J.H. Ferguson, then VEPCO's Executive Vice-President, to J.J. Oatts, a VEPCO Senior Vice President (Jan. 15, 1982)).

122. The construction and operation of a nuclear power plant has been construed by courts as necessarily involving the disposal of nuclear waste. *See, e.g.*, Northern States Power Co. v. Minnesota, 447 F.2d 1143, 1153 (8th Cir. 1971) ("[R]egulation of the radioactive effluents discharged from a nuclear power plant is inextricably intertwined with the planning, construction and entire operation of the facility."); Harris County v. United States, 292 F.2d 370 (5th Cir. 1961) (NRC authority to regulate byproduct materials includes authority to license the handling of radioactive waste). *See also Federal-State Relationships, supra* note 65, at 306.

123. At the outset, we emphasize that the statute does not seek to regulate the construction or operation of a nuclear power plant. It would clearly be impermissible for California to attempt to do so, for such regulation, *even if enacted out of non-safety concerns*, would nevertheless directly conflict with the NRC's exclusive authority over plant construction and operation.

Pacific Gas & Electric v. State Energy Resources Conservation & Dev. Comm'n, 103 S. Ct. 1713, 1726 (1983) (emphasis added).

124. *See also* Utility Consumers Council v. Public Service Comm'n, 562 S.W.2d 688, 698 (Mo. Ct. App. 1978) ("The federal government regulates *how* nuclear power plants will be constructed and maintained; the State . . . regulates *whether* they will be constructed.")

fore, in implementing the radiological/nonradiological dichotomy that section 274(k) compels, the Court is restricting the states' responsibility by limiting their authority to the decision of whether nuclear power is necessary or economically feasible. This decision, while providing a clear line of preemptive authority, is inconsistent with the statutory construction of section 274(k) and recent federal legislation.

1. Nuclear Waste Policy Act

On January 7, 1983, Congress enacted the Nuclear Waste Policy Act (NWPA).[125] This important piece of legislation adds yet another component to the complex issue of federal preemption of state regulation in the nuclear energy industry. The Act provides, for the first time, a comprehensive federal policy regarding the disposition of high-level nuclear waste. The Act acknowledges that the problem concerning nuclear waste disposal[126] is near a crisis level and that both Congress and the NRC are primarily responsible for the widespread skepticism regarding the federal policy on nuclear waste.[127] The NWPA sets forth a comprehensive plan for the location and development of permanent disposal sites for high-level nuclear waste.[128] The NWPA also provides a plan, although not as comprehensive as its scheme for permanent waste disposal, for interim

---

(footnote omitted) (emphasis added).

125. Pub. L. No. 97-425, 96 Stat. 2206 (1983) (codified at 42 U.S.C.A. §§ 10101-10226 (West 1983)).

126. "The Congress finds that . . . (2) a national problem has been created by the accumulation of (A) spent nuclear fuel from nuclear reactors; and (B) radioactive waste from (i) reprocessing of spent nuclear fuel; (ii) activities related to medical research, diagnosis, and treatment; and (iii) other sources." 42 U.S.C.A. § 10131(a) (West 1983).

127. Concerning the NRC's inability to cope with the problem of nuclear waste, the legislative history of the NWPA indicates that

> [i]n 1979, the D.C. Court of Appeals chastised the Nuclear Regulatory Commission in *Minnesota v. NRC* for relying on apparently shallow technical evidence in reading its general determination that it could continue to license reactor operations — and, specifically at issue in the case, expansion of spent fuel storage at reactor sites — based on its "reasonable assurances" that disposal facilities would be available for nuclear wastes when needed. Stopping short of contradicting the Commission's confidence, the court recommended that NRC review its basis for this confidence . . . . The ensuing NRC "waste confidence" review continues to this day with no conclusive determination having been reached on the issue.

H.R. REP. No. 491, 97th Cong., 2d Sess. 28 (1982), *reprinted in* 1982 U.S. CODE CONG. & AD. NEWS 3792, 3794.

Concerning Congress' inability to cope with nuclear waste disposal, the legislative history reveals that the "[f]ailures in the Federal repository development program, the collapse of the domestic spent fuel reprocessing industry and quickly deteriorating public confidence in our ability to deal safely with nuclear waste, together with other critical safety and economic issues, were seriously undermining the strength of the domestic nuclear industry." H.R. REP. No. 491, 97th Cong., 2d Sess. 28 (1982), *reprinted in* 1982 U.S. CODE CONG. & AD. NEWS 3792, 3794-95.

128. *See* 42 U.S.C.A. §§ 10131-10145 (West 1983).

spent fuel storage.[129] The preemptive effect of the NWPA has yet to be interpreted by the judiciary; however, its possible effects on state and local regulation of nuclear waste disposal may be significant.

a. Express Preemption

There is no provision in the NWPA that expressly prohibits state and local governments from enacting legislation affecting nuclear waste disposal. Indeed, the idea of express preemption was specifically adopted by the Senate but was rejected by the House of Representatives.[130] Other legislative history makes it evident that express preemption of state and local authority to regulate nuclear waste disposal, while considered, was not intended.[131]

b. Implied Preemption Regarding Permanent Waste Disposal

The NWPA expressly indicates that permanent disposal of nuclear waste is the federal government's responsibility.[132] While states are spe-

---

129. *Id.* §§ 10151-10157.

130. The amendment proposed by Senator McClure would, in effect, override state siting laws for nuclear power plants and would force immediate judgments in favor of the NRC's "waste confidence" review. *See* 128 CONG. REC. S4310 (daily ed. Apr. 29, 1982). However, the House of Representatives rejected this amendment. The statements of Congressman Ottinger indicate his belief that "it is crucial to the success of the [NWDA] that the states are given strong participation rights . . . ." 128 CONG. REC. H8795 (daily ed. Dec. 2, 1982). Rep. Ottinger also stated after the defeat of the McClure amendment that

> I am particularly pleased that this bill contains no findings or provisions which could preempt State or Federal laws . . . by a Congressional determination that there is reasonable assurance that a safe disposal method currently exists. There is no such determination, and such findings which were originally included in the bill were deleted to insure that there be no preemption.

Id. at H8797 (*noted in* Pacific Gas & Elec. v. State Energy Resources Conservation & Dev. Comm'n, 103 S. Ct. 1713, 1730 (1983)). *See also Nuclear Waste Disposal Policy: Hearings before the Subcomm. on Energy Conservation and Power of the Comm. on Energy and Commerce.* 97th Cong., 2d Sess. 553-54 (1982) (statement of Brooks Yeager, Sierra Club).

131. A Senate Report indicates that Congress was aware of specific legislation of localities to block the transshipment of spent nuclear fuel, yet it did not expressly preempt such local legislation. The Senate Report indicates that

> [t]here is growing opposition to fuel transshipments between reactor basins. . . . [I]f transshipments are interstate or intercounty, there may be local objections such as the ordinance adopted by the Board of Supervisors of Louisa County, Virginia, effectively banning the transshipment of spent fuel from the Virginia Electric & Power Company's Surry Plant to its North Anna Plant.

Brief of Appellants at 32, Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (4th Cir. Mar. 4, 1983) (citing S. REP. No. 282, 97th Cong., 1st Sess. 6 (1981)).

132. *See, e.g.*, 42 U.S.C.A. § 10131(a)(4) (West 1983) ("[T]he Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and such spent nuclear fuel as may be disposed of in order to protect the public health and safety and the environment . . . ."); *id.* § 10131(b)(2) (The purpose of the NWPA is to "establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and

cifically encouraged to coordinate their efforts with the federal government to find a solution to the high-level waste problem,[133] the burden for ultimately adopting and implementing such measures falls exclusively on the federal government.[134] Accordingly, the NWPA provides strong evidence that the federal government had a clear and unambiguous intent[135] to establish a "scheme of regulation" whereby state and local governments are preempted from regulating the permanent disposal of high-level nuclear waste.[136]

c. Implied Preemption Regarding Interim Waste Disposal

The NWPA, in its statement of purposes, expresses the intent "to define the relationship between the Federal Government and State governments with respect to the disposal of such waste and spent fuel . . . ."[137] However, the NWPA indicates that "the generators and owners of high-level radioactive waste and spent nuclear fuel have the primary responsibility to provide for, and the responsibility to pay the costs of, the interim storage of such waste and spent fuel . . . ."[138] This provision of the NWPA implies that the federal government has limited involvement concerning interim storage disposal.

The federal government's extent of involvement concerning interim storage is to provide a limited amount of storage, in preexisting federal interim storage facilities, for utilities that have expended available storage space at their own on-site storage facility.[139] However, interim storage will only be available to those utilities that have pursued, with due diligence, other alternatives.[140] The alternatives to be diligently pursued include: expansion of on-site storage facilities, construction of new on-site storage facilities, acquisition of modular or mobile spent fuel storage equipment, and transshipment to another civilian nuclear power reactor.[141] Accordingly, state or local laws which hinder or make impossible the utilities' attempt to diligently pursue these alternatives, which include transshipment to another power plant, may be viewed as conflicting with federal policy and therefore be preempted. However, there is evidence in the NWPA which indicates that these alternatives only need be attempted and not specifically implemented. The NWPA clearly indicates

---

spent fuel.").

133. *See, e.g., id.* § 10131(a)(6); *id.* § 10136.

134. *See supra* note 132.

135. *See supra* text accompanying note 81.

136. *See supra* text accompanying notes 41-42.

137. 42 U.S.C.A. § 10131(b)(3) (West 1983).

138. *Id.* § 10131(a)(5).

139. *See id.* § 10155(a)(1).

140. *Id.* § 10155(b)(1)(A), (B).

141. *Id.* § 10155(b)(1)(B).

that, in considering the availability of each alternative, there should be a conscious effort to seek to minimize the transportation of spent nuclear fuel.[142] Additionally, in weighing these various alternatives, the Commission will take into account a multitude of factors, including "local and state ordinances limiting the expansion or addition of storage capacity or transshipment."[143] These considerations, when coupled with Congress' specific knowledge of state and local laws which would render the implementation of the alternatives impossible,[144] indicate that these alternatives need only be pursued and not implemented before federal interim storage will be made available.

Finally, the states are given broad veto power with respect to the location of interim storage sites.[145] Accordingly, it appears that while the NWPA provides clear and manifest intent to preempt state and local law concerning permanent nuclear waste disposal, the intent to preempt state or local law regarding interim waste storage is far less clear.

2. Commerce Clause

The commerce clause is one of Congress' sources of constitutional power to regulate in the nuclear energy field.[146] Storage and disposal of nuclear waste are viewed by courts as activities that fall under the auspices of the commerce clause.[147] As indicated above, the Louisa County ordinance would effectively ban the storage of all waste not generated within its borders.[148] In *Philadelphia v. New Jersey*,[149] the Supreme Court struck down a New Jersey statute that prohibited the importation of solid or liquid waste which originated or was collected outside of the state.[150] According to the New Jersey statute, waste originated or collected within New Jersey could be disposed of inside the state. The Court

142. *Id.* § 10155(a)(3) ("In selecting methods of providing storage capacity . . . the Secretary . . . shall seek to minimize the transportation of spent nuclear fuel . . . .").

143. 48 Fed. Reg. 19382, 19384 (1983) (to be codified at 10 C.F.R. pt. 53), *cited in* Brief of Appellants at 37, Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (4th Cir. Mar. 4, 1983). *See also* 42 U.S.C.A. § 10108 (West 1983).

144. *See supra* note 108.

145. 42 U.S.C.A. § 10155(d) (West 1983).

146. *See supra* note 35 and accompanying text.

147. *See, e.g.*, Illinois v. General Elec. Co., 683 F.2d 206, 213 (7th Cir. 1982). ("The efficient disposal of wastes is as much a part of economic activity as the production that yields the waste as a byproduct, and to impede the interstate movement of those wastes is as inconsistent with the efficient allocation of resources as to impede the interstate movement of the product that yields them."); Washington State Bldg. & Constr. Trades Council v. Spellman, 518 F. Supp. 928, 933 (E.D. Wash. 1981) ("[A] common sense view of the facts . . . support[s] a determination that the movement of radioactivity in interstate commerce fits within the definition of 'commerce' for constitutional purposes.").

148. *See supra* note 25 and accompanying text.

149. 437 U.S. 617 (1978).

150. *Id.* at 628.

cifically encouraged to coordinate their efforts with the federal government to find a solution to the high-level waste problem,[133] the burden for ultimately adopting and implementing such measures falls exclusively on the federal government.[134] Accordingly, the NWPA provides strong evidence that the federal government had a clear and unambiguous intent[135] to establish a "scheme of regulation" whereby state and local governments are preempted from regulating the permanent disposal of high-level nuclear waste.[136]

c. Implied Preemption Regarding Interim Waste Disposal

The NWPA, in its statement of purposes, expresses the intent "to define the relationship between the Federal Government and State governments with respect to the disposal of such waste and spent fuel . . . ."[137] However, the NWPA indicates that "the generators and owners of high-level radioactive waste and spent nuclear fuel have the primary responsibility to provide for, and the responsibility to pay the costs of, the interim storage of such waste and spent fuel . . . ."[138] This provision of the NWPA implies that the federal government has limited involvement concerning interim storage disposal.

The federal government's extent of involvement concerning interim storage is to provide a limited amount of storage, in preexisting federal interim storage facilities, for utilities that have expended available storage space at their own on-site storage facility.[139] However, interim storage will only be available to those utilities that have pursued, with due diligence, other alternatives.[140] The alternatives to be diligently pursued include: expansion of on-site storage facilities, construction of new on-site storage facilities, acquisition of modular or mobile spent fuel storage equipment, and transshipment to another civilian nuclear power reactor.[141] Accordingly, state or local laws which hinder or make impossible the utilities' attempt to diligently pursue these alternatives, which include transshipment to another power plant, may be viewed as conflicting with federal policy and therefore be preempted. However, there is evidence in the NWPA which indicates that these alternatives only need be attempted and not specifically implemented. The NWPA clearly indicates

---

spent fuel.").

133. *See, e.g., id.* § 10131(a)(6); *id.* § 10136.

134. *See supra* note 132.

135. *See supra* text accompanying note 81.

136. *See supra* text accompanying notes 41-42.

137. 42 U.S.C.A. § 10131(b)(3) (West 1983).

138. *Id.* § 10131(a)(5).

139. *See id.* § 10155(a)(1).

140. *Id.* § 10155(b)(1)(A), (B).

141. *Id.* § 10155(b)(1)(B).

that, in considering the availability of each alternative, there should be a conscious effort to seek to minimize the transportation of spent nuclear fuel.[142] Additionally, in weighing these various alternatives, the Commission will take into account a multitude of factors, including "local and state ordinances limiting the expansion or addition of storage capacity or transshipment."[143] These considerations, when coupled with Congress' specific knowledge of state and local laws which would render the implementation of the alternatives impossible,[144] indicate that these alternatives need only be pursued and not implemented before federal interim storage will be made available.

Finally, the states are given broad veto power with respect to the location of interim storage sites.[145] Accordingly, it appears that while the NWPA provides clear and manifest intent to preempt state and local law concerning permanent nuclear waste disposal, the intent to preempt state or local law regarding interim waste storage is far less clear.

2. Commerce Clause

The commerce clause is one of Congress' sources of constitutional power to regulate in the nuclear energy field.[146] Storage and disposal of nuclear waste are viewed by courts as activities that fall under the auspices of the commerce clause.[147] As indicated above, the Louisa County ordinance would effectively ban the storage of all waste not generated within its borders.[148] In *Philadelphia v. New Jersey*,[149] the Supreme Court struck down a New Jersey statute that prohibited the importation of solid or liquid waste which originated or was collected outside of the state.[150] According to the New Jersey statute, waste originated or collected within New Jersey could be disposed of inside the state. The Court

142. *Id.* § 10155(a)(3) ("In selecting methods of providing storage capacity . . . the Secretary . . . shall seek to minimize the transportation of spent nuclear fuel . . . .").

143. 48 Fed. Reg. 19382, 19384 (1983) (to be codified at 10 C.F.R. pt. 53), *cited in* Brief of Appellants at 37, Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (4th Cir. Mar. 4, 1983). *See also* 42 U.S.C.A. § 10108 (West 1983).

144. *See supra* note 108.

145. 42 U.S.C.A. § 10155(d) (West 1983).

146. *See supra* note 35 and accompanying text.

147. *See, e.g.*, Illinois v. General Elec. Co., 683 F.2d 206, 213 (7th Cir. 1982). ("The efficient disposal of wastes is as much a part of economic activity as the production that yields the waste as a byproduct, and to impede the interstate movement of those wastes is as inconsistent with the efficient allocation of resources as to impede the interstate movement of the product that yields them."); Washington State Bldg. & Constr. Trades Council v. Spellman, 518 F. Supp. 928, 933 (E.D. Wash. 1981) ("[A] common sense view of the facts . . . support[s] a determination that the movement of radioactivity in interstate commerce fits within the definition of 'commerce' for constitutional purposes.").

148. *See supra* note 25 and accompanying text.

149. 437 U.S. 617 (1978).

150. *Id.* at 628.

2. Utilizing the 1977 Amendments to the Clean Air Act

The 1977 amendments to the Clean Air Act[167] transferred the NRC's responsibility to regulate radioactive air emissions to the Environmental Protection Agency (EPA).[168] This transfer was deemed necessary by Congress because of the NRC's lack of priority for environmental concerns.[169] The initial strength of possible state regulation lies within the definitional change of air pollutant as defined in section 302(g). This section indicates that "[t]he term 'air pollutant' means any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air."[170] Section 116 provides that "nothing in this chapter shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirements respecting control or abatement of air pollution . . . ."[171] This definitional change, in combination with the broad powers which states currently possess under section 116, seems to provide state and local governments with the authority to indirectly regulate both nuclear power plants and disposal sites.[172] Thus, subject to certain limitations,[173] state and local governments may enact radioactive air emission standards that are equivalent to, or more stringent than, federal government standards. The legislative history of the 1977 amendments reveals that states and localities would not be preempted from enacting such legislation even if it imposed significant bur-

---

would be forced to close down. Richmond News Leader, Oct. 10, 1983, § A at 13, col. 4. One author has noted that "[m]ore than 20% of the U.S. population had had the opportunity to vote on the need for nuclear energy . . . and they have affirmed it by a 2-1 landslide." [1976 Current Developments] ENV'T REP. (BNA) 986.

167. Pub. L. No. 95-95, 91 Stat. 685 (codified in 42 U.S.C. §§ 7401-7642 (1976 & Supp. V 1981)).

168. *See Hearings on Reorganization Plan No. 3 Before the House Comm. on Gov't Operations*, 91st Cong., 2d Sess. 18 (1970).

169. One of the principal reasons the House Committee on Interstate and Foreign Commerce transferred this authority to the EPA was the fact that "[t]he Committee also felt that NRC's primary function was to license nuclear plant siting and construction, with environmental concerns being of secondary importance." *EPA Receives Authority to Regulate Radioactive Effluents*, [1964-1981 Transfer Binder Current Developments] NUCLEAR REG. REP. (CCH) ¶ 20,064 (Oct. 24, 1977).

170. 42 U.S.C. § 7602(g) (Supp. V 1981).

171. 42 U.S.C. § 7416 (Supp. IV 1981).

172. *See, e.g.*, Davis, Kartuck, Leape & Magill, *The Clean Air Act Amendments of 1977: Away From Technology-Forcing?*, 2 HARV. ENVT'L L. REV. 1 (1977); Meek, *Nuclear Power and State Radiation Protection Measures: The Impotence of Preemption*, 10 ENVTL. L. 1, 24-30 (1979); Stensvaag, *State Regulation of Nuclear Generating Plants Under the Clean Air Act Amendments of 1977*, 55 S. CAL. L. REV. 514, 533 (1982).

173. *See* Stensvaag, *supra* note 172, at 538.

dens on AEC licensees.[174]

Judicial response, however, has not been particularly favorable to states which have attempted to rely on the Clean Air Act as a means of regulating the nuclear energy industry. The court in *Illinois v. General Electric Co.*[175] declared the Illinois Spent Fuel Act unconstitutional based upon supremacy and commerce clause grounds. As an alternative, Illinois argued that the authority given to the states by the 1977 amendments to the Clean Air Act authorized Illinois to restrict the disposal of nuclear waste as Illinois saw fit.[176] This argument failed for several reasons. The court held 1) that the Clean Air Act did not purport to limit federal powers under other statutes such as the Atomic Energy Act; 2) that the Illinois Spent Fuel Act contained no provision for regulating or controlling radioactive air pollution; 3) that the effect of the Spent Fuel Act may be to reduce radioactive air emissions, but that reduction was not the Illinois statute's purpose; and 4) that there was no evidence presented to prove that the disposal of nuclear waste in the state would emit radioactivity into the air.[177]

Thus, according to the *General Electric* court, a state or local law that imposes legitimate radioactive air emission standards on AEC licensees will probably be upheld. The 1977 amendments to the Clean Air Act are a valid source of state and local regulation in the nuclear field that have been virtually overlooked.[178]

IV. Transportation of Nuclear Wastes: Federal and State Regulations Invalidate the Spotsylvania County Ordinance

Storage of nuclear wastes, specifically of spent fuel rods, will inevitably

---

174. Under this provision, radioactive pollutants, including source material, special nuclear material and byproduct material are covered by Section 116 of the Clean Air Act. Thus, any State, or political subdivision thereof, may establish standards more stringent than Federal, or where a Federal standards [sic] has not been established, may establish *any* standards they deem appropriate. Thus the provision would not preempt States and localities from setting and enforcing stricter air pollution standards for radiation than the Federal standards, and would not follow the holding of *Northern States Power Co. v. State of Minnesota* in the context of radioactive air pollution.

H.R. Conf. Rep. No. 564, 95th Cong., 1st Sess. 143, *reprinted in* 1977 U.S. Code Cong. & Ad. News 1502, 1523-24 (citation omitted) (emphasis added).

175. 683 F.2d 206 (7th Cir. 1982).

176. *Id.* at 215.

177. *Id.* at 215-16.

178. However, some states have enacted radiation air emission statutes. *See, e.g.*, Colo. Rev. Stat. § 25-7-103 (Repl. Vol. 1982); N.H. Rev. Stat. Ann. § 125-6 (1977 Repl. Vol. & Supp. 1981). Virginia has established the Air Pollution Control Board. *See* Va. Code Ann. § 10-17.11 (Repl. Vol. 1978). However, Virginia has yet to include radioactive emissions in its definition of "air pollutant."

involve transporting those wastes from power generating stations to storage facilities. Unlike the issue of where to store high-level wastes, the issues surrounding transportation of those wastes will not be resolved by any future establishment of a federal high-level waste repository.

This part of the note will discuss the system of federal regulation of the transportation of nuclear wastes, the regulations and monitoring structure of the Commonwealth of Virginia, the extent of transportation of nuclear wastes in Virginia, the potential hazards involved, the Spotsylvania County ordinance purporting to regulate shipments of nuclear materials through the county, and finally, the interaction among the three levels of government in their respective efforts to regulate the transportation of nuclear wastes.

A. *The Federal Regulatory System*

1. The Source of Power

The commerce clause of the United States Constitution[179] grants to the federal government regulatory power over interstate commerce. This grant of authority functions simultaneously as a restriction on state activity in the same area. However, due to the inherent state police power, the federal and state governments have traditionally shared authority over transportation.[180] This concurrent jurisdiction has repeatedly presented opportunities for courts to engage in balancing the interests of the states against the interest of the federal government in protecting interstate commerce. Furthermore, where the federal government has created an extensive regulatory system with an intent to establish national uniformity,[181] there is little room left for state action in the same field.[182] Such is the case with transportation of nuclear wastes.

2. The Exercise of Regulatory Authority

The Nuclear Regulatory Commission (NRC) and the Department of Transportation (DOT) share authority over transportation of radioactive materials.[183] NRC derives broad power over civilian nuclear activities from the Atomic Energy Act of 1954.[184] The 1959 addition to the Act,

---

179. U.S. CONST. art. I, § 8, cl. 3.

180. *See generally* South Carolina Highway Dep't v. Barnwell Bros., 303 U.S. 177 (1938).

181. The federal government has recognized the need for national uniformity of production of nuclear energy and transportation of nuclear wastes. *See* Atomic Energy Act of 1946, Pub. L. No. 79-585, 60 Stat. 755 (current version at 42 U.S.C. §§ 2011-2296 (1976)).

182. *See generally* Note, *Pre-emption as a Preferential Ground: A New Canon of Construction*, 12 STAN. L. REV. 208 (1959).

183. Transportation of Radioactive Materials, Memorandum of Understanding, 44 Fed. Reg. 38,690 (1979) [hereinafter cited as Memorandum of Understanding].

184. Trosten & Ancarrow, *Federal-State-Local Relationships in Transporting Radioac-*

section 274,[185] provides a framework within which states may enter into agreement with the federal government to acquire certain areas of authority previously exercised by the NRC.[186] The inference that section 274 excludes transportation of high-level wastes from those areas which may be relinquished to the state may be derived from section 274(c)(1), where it is stated that the NRC "shall retain authority and responsibility with respect to the regulation of (1) the construction and *operation* of any production of utilization facility. . . ."[187] Testimony from the congressional hearings prior to the adoption of section 274 supports this inference: "Under the licenses which we issue for the *operation* of nuclear reactors, we would have control over the shipment of any irradiated fuel elements from the facility to a chemical reprocessing plant. . . ."[188] Transportation is seen as being implicit in the meaning of *operation*.[189]

The DOT's jurisdiction over transportation of radioactive material is derived from the Interstate Commerce Commission.[190] The Hazardous Materials Transportation Act (HMTA)[191] vests in the Secretary of DOT authority to issue and enforce uniform regulations relating to hazardous materials in all modes of transportation. Section 104 of the HMTA includes radioactive materials as a designated hazardous material.[192] A primary purpose of the HMTA was the codification of regulations of various modal administrations.[193] To this end, the DOT serves as an umbrella for subdivisions which implement the HMTA: the Coast Guard supervises transport in navigable waterways, the Federal Railway Administration supervises railroad safety, and the Federal Aviation Administration imple-

---

tive Materials: Rules of the Nuclear Road, 68 KY. L.J. 251, 255-56 (1980).

185. *See supra* notes 59-79 and accompanying text.

186. Atomic Energy Act of 1954, ch. 724, 73 Stat. 688 (1959), *amended by* 1970 Reorg. Plan No. 3, §§ 2(a)(7), 6(2), 84 Stat. 2086 (1970) (current version at 42 U.S.C.A. § 2021 (West 1973 & Supp. 1984)).

187. 42 U.S.C.A. § 2021(c)(1) (emphasis added).

188. Trosten & Ancarrow, *supra* note 184, at 260 (quoting *Hearings Before the Joint Committee on Atomic Energy, on Federal-State Relationships in the Atomic Energy Field*, 86th Cong., 1st Sess. 287, 306 (1959)) (emphasis added).

189. From the provisions of the Atomic Energy Act, its legislative history, the regulations, and the *Northern States Power Company* case, we conclude that transportation of nuclear fuel and waste radioactive products to and from a nuclear power plant is included within the phrase "construction and operation of any . . . utilization facility" within the meaning of 42 U.S.C. § 2121(c)(1).

OP. ATT'Y GEN. CAL. [1981 Transfer Binder] NUCLEAR REG. REP. (CCH) ¶ 20,129 at 16,765 (Aug. 24, 1979).

190. Trosten & Ancarrow, *supra* note 184, at 264.

191. Hazardous Materials Transportation Act, Pub. L. No. 93-633, 88 Stat. 2156 (1975) (codified at 49 U.S.C. § 1804(a) (1976)).

192. 49 U.S.C. § 1803.

193. Trosten & Ancarrow, *supra* note 184, at 264-65. Modal refers to the various modes of transportation, such as rail, motor freight, and air.

ments HMTA as applied to domestic and international air shipments.[194]

In an effort to delineate the respective responsibilities in the area of transportation regulation, the NRC and the DOT entered into a Memorandum of Understanding.[195] This agreement pledges exchange of information, consultation, and assistance between the two agencies.[196] In general, the responsibilities are designated:

> The DOT is responsible for regulating safety in transportation of all hazardous materials, including radioactive materials, and the NRC is responsible for regulating safety in receipt, possession, use, and transfer of by-products source, and special nuclear materials. The NRC reviews and approves or denies approval of package designs for fissile materials and for other radioactive materials in quantities exceeding Type A limits, as defined in 10 CFR Part 71.[197]

The areas covered by NRC and DOT regulations include classification of nuclear wastes,[198] pre-notification of state agency requirements,[199] packaging design and testing,[200] placarding,[201] training requirements for drivers of Type B and Type B large quantity cargoes,[202] loading and unloading,[203] routing,[204] and accident reporting.[205]

B. *Virginia's Regulatory Scheme*

1. Sources of Power

The tenth amendment to the United States Constitution recognizes that power not delegated to the federal government by the Constitution, nor expressly prohibited by it to the states, is reserved for the states.[206] There also exists an inherent state authority to exercise police power, in promotion of the health and safety of its residents.[207] Police power, however, is not accorded unlimited scope when it interferes with interstate commerce[208] or trespasses into a realm of federal regulation.[209] As noted

---

194. *Id.*
195. Memorandum of Understanding, *supra* note 183.
196. *Id.* at 38,691.
197. *Id.* at 38,690. Fissile materials include uranium 233, uranium 235, plutonium 238, plutonium 239, and plutonium 241. 10 C.F.R. § 71.4(e) (1982).
198. 10 C.F.R. § 61.2 (1983) (low-level waste); *Id.* § 60.2(b)(j) (high-level waste).
199. *Id.* § 71.5a.
200. *Id.* §§ 71.1-.42.
201. 49 C.F.R. §§ 172.500-.558 (1982).
202. *Id.* § 177.825(d).
203. *Id.* §§ 177.834-.844.
204. *Id.* § 177.825.
205. *Id.* § 177.861.
206. U.S. CONST. amend. X. *See also supra* notes 31-33 and accompanying text.
207. *See* South Carolina Highway Dep't v. Barnwell Bros., 303 U.S. 177 (1938).
208. *See generally* Southern Pac. Co. v. Arizona, 325 U.S. 761 (1945).
209. *See generally* Campbell v. Hussey, 368 U.S. 297 (1961).

above, the federal government has legislated extensively in the field of transportation of nuclear wastes.[210] As to transportation, congressional intent is clear as to what areas are open for state action.[211] Virginia exercises authority in routing,[212] economic, non-safety matters,[213] and monitoring transportation.[214]

DOT regulations grant to states some discretion as to route designations.[215] Preferred routes for shipping are described as 1) an interstate highway system for which an alternative route is not designated by a state routing agency and 2) a state designated route selected by a state routing agency.[216] The State Board of Health functions as the state routing agency in Virginia, but any routes established by it must be approved by the NRC.[217] It is doubtful that the state routing agency, or any local government, could require a designated route to include a mode of transportation other than that of highway.[218] The "state designated routes" apply only to highway routes.[219] Furthermore, a recent ruling of the Court of Appeals for the Second Circuit states that the DOT national scheme for preferred routes of highway transport of radioactive materials not only did not have to include alternative modes of transportation to satisfy its statutory responsibilities,[220] but also that any state designated route including alternative modes would be inconsistent with DOT routing guidelines.[221]

After an interstate shipment has entered Virginia or after an intrastate shipment has begun its journey, any variation from the established route must be approved by the Department of Health[222] and must be "based on a comparative radiological risk assessment process at least as sensitive as that outlined in the DOT guidelines."[223]

While the discretion allowed to states with regard to routing may seem

---

210. *See supra* notes 197-205 and accompanying text.

211. *See supra* note 188 and accompanying text.

212. This authority exists concurrently with DOT routing requirements. 49 C.F.R. § 177.825 (1982).

213. *See supra* notes 111-18 and accompanying text.

214. Federal regulations requiring advance notification by carriers to states of shipments of nuclear wastes imply state authority to monitor transportation while the carrier is within the state. 10 C.F.R. § 71.5a (1983); *see also* VA. CODE ANN. § 44-146.30 (Repl. Vol. 1981).

215. 49 C.F.R. § 177.825 (1982).

216. *Id.*

217. Telephone interview, *supra* note 16.

218. For example, in an attempt to avoid transportation of European spent fuel through the City of Portsmouth, a routing rule might hypothetically include barging out of Portsmouth.

219. 49 C.F.R. § 171.8 (1976).

220. *See* City of New York v. Department of Transp., 715 F.2d 732, 744 (2d Cir. 1983).

221. 49 C.F.R. § 177, app. A (1981).

222. Telephone interview, *supra* note 16.

223. 49 C.F.R. § 177, app. A (1982).

to be strictly limited, it does allow those who are knowledgeable of road and geographic considerations to participate in the routing process, and to make quick decisions when alternate routes are needed.

2. Exercise of Regulatory Authority: Who Does What in Virginia

In an exercise of non-safety economic regulatory power, Virginia has recently established the Radiological Emergency Preparedness Fund (Fund).[224] The Fund is created by one-time and annual fees imposed upon each NRC licensed operative nuclear power facility in the state. While the Fund will not broaden state regulatory power over transportation, it will expand the monitoring capabilities of state and local agencies by "establishing, maintaining, and operating . . . emergency plans, programs, and capabilities to deal with nuclear accidents," including transportation accidents.[225]

Until recently, the State Board of Health depended solely upon NRC and DOT regulations. However, newly enacted legislation charges the Board of Health with promulgation of regulations to monitor shipments within the state.[226] Pursuant to the state's police power, the Board of Health issues certificates of transport based on compliance with DOT and NRC regulations.[227] Certificates are necessary for all shipments of Type A, B, and B large quantity material.[228]

The Office of Emergency Services (OES) is responsible for *monitoring* certain activities.[229] In addition to issuing certificates for transport, the OES is charged with monitoring carriers while in the state, as well as formulation and implementation of emergency response plans.[230] Further, OES is responsible for dissemination of information concerning future shipments to the law enforcement agencies of the localities which will be

224. VA. CODE ANN. § 44-146.33 (Cum. Supp. 1983).

225. *Id.*

226. The Coordinator of the Office of Emergency Services, pursuant to rules and regulations promulgated by the Board of Health, will *maintain a registry of shippers of hazardous radioactive materials* and monitor the transportation within the Commonwealth of those hazardous radioactive materials, as defined by the Board of Health, which may constitute a significant potential danger to the citizens of the Commonwealth in the event of accidental spillage or release. The rules and regulations promulgated by the Board shall not be in conflict with federal statutes, rules, or regulations. Other agencies and commissions of the Commonwealth shall cooperate with the Board of Health in the formulation of rules and regulations as herein provided. VA. CODE ANN. § 44-146.30 (Cum. Supp. 1984).

227. RERP, *supra* note 17, at app. 14-7. This is pursuant to authority granted under VA. CODE ANN. § 18.2-278.2 (Repl. Vol. 1982).

228. RERP, *supra* note 17, at app. 14.

229. VA. CODE ANN. § 44-146.30 (Cum. Supp. 1984).

230. RERP, *supra* note 17, at app. 14-3.

affected.[231] Finally, OES is charged with the responsibility for training local personnel in the use of radiological monitoring and response procedures.[232]

In the event of a transportation accident, the primary responsibility of local governments is to "provide overall response as it affects the general public."[233] This includes immediate notification to the Bureau of Radiological Health, an agency of the Department of Health, and, in the event of an accident involving military materials, notification to the Joint Nuclear Accident Coordinating Center, a federal agency.[234] Because of the high probability that local officials would be the first to deal with a transportation accident scenario, their role in the transportation of high-level nuclear wastes is a crucial one.

C. *The Approximate Extent of Nuclear Waste Transportation in Virginia*

Radioactive materials may be transported within or through Virginia by the four transportation modes: air, water, highway, or rail.[235] Highway transport is the predominant mode.[236]

There are approximately seventy shipments of hazardous radioactive materials annually in Virginia.[237] The percentage of these shipments consisting of nuclear waste is uncertain. Certainly the high-level content nuclear wastes would include weapons material, residue from research reactors, and other fuel cycle wastes.[238] In addition to shipments passing through the state on Interstate 95,[239] the port of Portsmouth receives shipments of spent fuel shipped by sea from Europe, en route to South Carolina for interim storage.[240]

---

231. *Id.*

232. *Id.* at app. 14-2.

233. *Id.* at app. 14-4.

234. *Id.* at app. 14-1.

235. There is virtually no transport of radioactive materials by rail, air or water in Virginia. Telephone interview, *supra* note 16.

236. RERP, *supra* note 17, at app. 14-2.

237. *Id.*

238. There are research reactors at the University of Virginia and at Virginia Polytechnic Institute and State University. RERP, *supra* note 17, at app. 13.

239. Mr. McNeer said that there are frequent shipments, but no figures were available as to frequency. Telephone interview, *supra* note 16.

240. These shipments are pursuant to an agreement signed by President Carter whereby the United States receives spent fuel from Europe, in an attempt to diminish the possibility of sabotage of plutonium in Europe. There is approximately one shipment per month. The Coast Guard accompanies the ship while in U.S. waters. It is guarded in the port by commercial armed guards, and is accompanied by armed guard, pursuant to NRC regulations, upon leaving the port by truck. Telephone interview with Mr. Stroud, Executive Director, Virginia Port Authority, Portsmouth, Va. (Oct. 4, 1983).

The possibility of shipments of spent fuel from VEPCO's Surry nuclear generating plant in Surry County, Virginia, to its North Anna plant in Louisa County, Virginia, would substantially increase the volume of Type B large quantity shipments on Virginia's roads.[241] The routes which have been approved by the NRC consist of combinations of state, interstate, and county highways, and each would pass through densely populated areas, such as Richmond, Petersburg, and Hopewell.[242] Opposition to this proposal has been vehement and organized.[243] If Virginia were to become a site for a permanent repository,[244] opposition to shipments of spent fuel might become even more vocal and vehement.

D. *The Spotsylvania County Ordinance: An Analysis in Light of Federal and State Regulatory Activity*

In response to the proposed shipments of spent fuel from Surry to North Anna, the Board of Supervisors of Spotsylvania County in March, 1983 unanimously passed an ordinance[245] purporting to regulate ship-

---

241. *See supra* note 8.

242. Richmond Times Dispatch, July 30, 1982, § B, at 1, col. 6.

243. *See supra* note 8.

244. *See supra* note 9.

245. Pertinent portions are reproduced: NUCLEAR MATERIAL TRANSPORTATION ORDINANCE FOR SPOTSYLVANIA COUNTY.

Section 1. *Findings; Purpose*

(a) The purposes of this ordinance are:
(1) To protect, secure and promote the public health, safety, and general welfare of the inhabitants of the County of Spotsylvania, consistent with the general laws of the Commonwealth of Virginia; (2) To provide minimum standards and regulations insuring the safe shipment and transportation of radioactive materials through the County of Spotsylvania; (3) To require a showing by the proposed shipper of certain types of radioactive materials, of (i) the reasons for each proposed shipment or series of shipments, and (ii) the public or private highway, roads, streets or alleys over which said materials will be shipped.

(b) The board of Supervisors of the County of Spotsylvania finds that:
(1) The number of radioactive material shipments is increasing and will continue to increase, according to studies commissioned by the United States Government; and (2) The transportation of radioactive materials poses a potentially substantial threat to the health, safety, and general welfare of the inhabitants of Spotsylvania County; and (3) In the event of a transportation accident, terrorist action, or subversive act involving radioactive materials, the protection of public health, safety and general welfare will fall first and principally on the County. The County must therefore prepare emergency response procedures and train the public safety officials in the proper response to such an incident; and (4) Local emergency response personnel have indicated that their training and equipment are currently inadequate to deal with the consequences of a release of radiation resulting from a transportation accident, terrorist action or subversive act; and (5) The cost of emergency procedures and training should properly be borne by those who introduce the risk, i.e., the producers and/or shippers of radioactive material.

ments of radioactive materials through the county.[246] Although the ordinance appears to govern a broad range of shipments, it is aimed primarily at, and was motivated by, the Surry to North Anna shipments.[247] No requests for certificates of transport have yet been made by any carriers currently transporting through Spotsylvania County on Interstate 95, nor have any penalties been imposed for noncompliance.[248]

Spotsylvania does not lie on the primary route which would be used; out of a projected thirty Surry to North Anna shipments per year, none of these would pass through Spotsylvania unless the Primary Route and Alternate Routes C and D were inoperative due to temporary road or weather conditions.[249] Based on these facts, it may appear that Spotsylvania has "jumped the gun" by its declared intention to intervene in events which have little likelihood of occurring. On the other hand, this ordinance may be considered a good faith attempt to intervene in an event which menacingly hovers in the future.

Although VEPCO has declared that it is interested in complying with this ordinance,[250] if a certificate of transfer were to be denied, or an in-

---

* * * * *

(b) A certificate of Emergency Transport for a shipment, or series of shipments shall be issued by the Coordinator or his designee with approval by the Board of Supervisors (except as provided in Section 2(b) herein), after finding by the Board, upon the filing of a statement by the producer and/or shipper, that:
(1) The proposed shipment or shipments will not pose a substantial risk to the health, safety and general welfare of the inhabitants of the County of Spotsylvania; (2) The routes of transportation do not pass within two-hundred and fifty (250) feet of public institutions such as schools, hospitals, nursing homes, day care centers, courthouses or other public institutions at which more than fifty (50) people are typically gathered.

Section 4. *Fees for the Issuance of the Certificate of Emergency Transport and Period of Validity:*

(a) Upon the final approval by the Board of Supervisors as contemplated in Subsection 3(b) above and upon the issuance of Certificate of Emergency Transport the shipper shall pay a fee in the amount of $200.00 for each shipment authorized by such Certificate. Upon expiration of the Certificate of Emergency Transport the Coordinator shall refund to the shipper the amount of $200.00, for each shipment authorized by such Certificate but not made, except that the Coordinator shall be entitled to retain $100.00 in connection with each Certificate of Emergency Transport issued by him without regard to whether any shipment is actually made pursuant to such Certificate.

Spotsylvania County, Va., Ordinance to Regulate Transportation of Nuclear Materials (March 23, 1983).

246. Telephone interview with Mr. Bob Scott, Coordinator of Emergency Services for Spotsylvania County, Va. (Sept. 29, 1983).

247. Telephone interview with Mr. Ron Maupin, Attorney for Spotsylvania County, Va. (Oct. 4, 1983).

248. *Id.*

249. Telephone interview with Mr. Rodney Smith, News Director for VEPCO (Oct. 7, 1983).

250. Richmond Times Dispatch, March 24, 1983, § D, at 1, col. 1.

junction against shipments were to be requested by the county in the future, VEPCO would be in the position of challenging the ordinance. Therefore, it is useful to analyze the validity of the Spotsylvania ordinance. Such analysis may also provide guidance for localities in the future, if they are confronted by regular shipments of high-level nuclear wastes.

1. Supremacy Clause Analysis

When a state or local exercise of police power is challenged under the supremacy clause,[251] there is an "assumption that the historic police powers of the State are not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress."[252] By requiring that carriers of large quantity Type B packages give notification to the "appropriate governor or governor's designee"[253] of each state on the carrier's route, the federal government, through the NRC, acknowledges the valid state police power of monitoring transportation of radioactive material. States' procedures of issuing certificates of transport have operated unchallenged for years. A supremacy clause attack on that procedure would, therefore, be unsuccessful. The Spotsylvania ordinance should be evaluated, however, in terms of its relationship to the legitimate state monitoring procedure. This evaluation can be facilitated through a commerce clause analysis.

2. Commerce Clause Analysis

The commerce clause[254] grants power to the federal government to keep the flow of interstate commerce unhindered by state action. An ordinance purporting to regulate the transportation of radioactive materials, which will include substantial amounts of nuclear waste, will be subject to a commerce clause test for two reasons. First, waste products are considered to be within the flow of commerce, even though the waste may not be a marketable commodity.[255] Second, nuclear waste incident to generation of power is part of the total nuclear cycle.[256] Nuclear wastes comprise a "current of commerce"[257] component of the production of energy. Nuclear energy may be perceived as a six-step process: mining uranium, conversion, enrichment, fabrication, generation, and storage.[258] An impedi-

251. *See supra* notes 31-48 and accompanying text.
252. Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 239 (1947).
253. 10 C.F.R. § 71.5a (1980).
254. U.S. CONST. art I, § 8, cl. 3.
255. *See* Philadelphia v. New Jersey, 437 U.S. 617 (1978).
256. Brief for Plaintiff at 39, Virginia Elec. & Power Co. v. Louisa County, Va., No. 83-1241 (E.D. Va. Mar. 4, 1983).
257. Stafford v. Wallace, 258 U.S. 495, 516 (1922).
258. *See* Brief for Plaintiff at 39, *Louisa County*, No. 83-1241 (E.D. Va. Mar. 4, 1983).

ment to any one of these steps may affect any of the others.

The current analysis of burden on commerce questions is a case-by-case approach that balances the need for uniform and unimpeded commerce against the legitimate need of states and localities to supervise local safety concerns.[259] The first inquiry must be whether the ordinance is facially discriminatory, that is, does it favor local interests to the exclusion of others?[260] The Spotsylvania ordinance makes no distinction between radioactive materials originating within the county or state and those originating outside of it; clearly there is no per se discrimination.

If no discrimination is found, the inquiry turns to the legitimacy of the local purpose, and whether that local purpose can be "promoted as well with a lesser impact on interstate activities."[261] As applied to the Spotsylvania County situation, the remainder of the commerce clause test involves an assessment of the county's concern as well as the effectiveness of the regulations designed to confront that concern. Certainly a local concern does exist in the promotion of safety, and in the ability of county personnel to respond in the event of an accident. However, is there danger such that "[a]ny vibration on the highway, or even an accident, could create a problem"?[262] Does a decision by the County Board of Supervisors truly enhance the safety of transportation?

Consideration of risks of nuclear waste transportation requires examination of both accident-free, normal transportation, and of the consequences of accidents.[263] Accident-free, normal transportation involves "normal population dose," small amounts of radiation emitting from everything from small Type A packages to spent fuel casks.[264] Estimated total population dose from radioactive materials transportation in 1985 will be 25,400 person rems,[265] compared with 40,000,000 person rems received by the United States population from natural background radiation.[266] It is estimated that transportation contributes .1% of total dose of back-

259. Trosten & Ancarrow, *supra* note 184, at 286.

260. *See* Pike v. Bruce Church, Inc., 397 U.S. 137 (1970) (modern burden-on-commerce test).

261. *Id.* at 142.

262. New York Times, Oct. 6, 1983, at A18, col. 1 (excerpt of a quotation from Mayor Ed Gregorski of Dunkirk, N. Y., expressing the uninformed fear of his community pursuant to shipment of fuel from West Valley, N.Y. to Two Rivers, Wis.).

263. Highway Routing of Radioactive Material, Dep't of Transportation, 45 Fed. Reg. 7140 (1980) (later codified at 49 C.F.R. §§ 173, 177) [hereinafter cited as Highway Routing]. Information quoted hereafter was collected pursuant to a study conducted prior to the establishment of routing rules.

264. 45 Fed. Reg. 7144 (1980).

265. Rem is the acronym for Roentgen Equivalent Man, the unit of dose of any ionizing radiation which produces the same biological effect as a unit of absorbed dose of ordinary x-ray. RERP, *supra* note 17, at app. 15-7.

266. Highway Routing, *supra* note 263, at 7144.

ground radiation,[267] and that total background radiation causes "an average of 3.07 latent cancer fatalities per year."[268] Based on these estimates, accident-free, normal transportation poses a minimal danger to Spotsylvania.

The consequences of an accident are largely speculative. However, current professional consensus in terms of types of events and possibility of occurrence does exist:

1. a nuclear waste or spent fuel accident cannot give rise to a nuclear explosion,

2. only a radiological transportation accident involving sabotage of plutonium or spent fuel shipments can give rise to an accident which threatens fatalities, and

3. apart from the possibility of sabotage causing a nuclear waste shipment accident, estimates as to release fraction[269] vary greatly; it is wise to allow for the possibility that ten or more radiological fatalities could be associated with extreme accidents involving high level wastes and spent fuel.[270]

Although these possibilities sound ominous, the likelihood of occurrence of a worst case accident is extremely remote. For example, a hypothetical worst case accident involving a shipment of spent fuel through a high density urban area is likely to occur once in a billion years.[271] While such possibilities seem infinitesimally remote, concern is legitimate in an area characterized by many variables and by a paucity of historical data.[272] It is doubtful, however, that the issuance of a certificate by the County Board of Supervisors will further the legitimate local purpose of protecting the safety of its citizens. The Board members have undoubtedly acted with the best of intentions, but they are elected officials without professional-level expertise in radiological hazards.[273] Moreover, the $200 fee will probably not serve as a viable revenue generating measure in furtherance of the legitimate economic purpose, since the anticipated Surry to North Anna shipments passing through Spotsylvania will be

---

267. *See* City of New York v. Department of Transp., 715 F.2d 732, 745 (2d Cir. 1983). "Latent cancer fatality" is a death that results from exposure to radiation, that occurs more than a year after exposure, and that would not have occurred in the absence of the exposure. *Id.* at 745 n.13.

268. *Id.* at 745.

269. "Release fraction" refers to the fraction of radioactive material released into the air. Norton, *supra* note 2, at 741.

270. *Id.* at 740-41.

271. Highway Routing, *supra* note 263, at 7143.

272. Norton, *supra* note 2, at 739. Accidents involving releases of radioactivity have all occurred with Type A packages. Therefore, there is no data as to the consequences of accidents involving Type B or Type B large quantity packaging.

273. Telephone interview, *supra* note 246.

minimal.[274]

These local purposes can "be promoted with a lesser impact on interstate activities."[275] A primary purpose of the ordinance is that of giving notification, a function already assigned to the state OES.[276] In 1979, the Board of Supervisors of Anne Arundel County, Maryland, enacted an ordinance regulating the passage of hazardous wastes through the county by means of certificate issuance, prenotification requirement, and licensing fee.[277] The Spotsylvania ordinance virtually mirrors these requirements. In examining the Anne Arundel ordinance, the Maryland Court of Appeals noted:

> Thus, the local ordinances would not appear to be necessary for Anne Arundel County to accomplish its second series of objectives, namely to have knowledge of the nature of hazardous substances being transported through the county. Between the State and federal laws and regulations, all transportation of hazardous substances through the county is already subject to the type of controls and requirements which the county seeks to impose through the portions dealing with transportation. Thus the county's interest could be promoted as well with a lesser impact on interstate activities.[278]

The court recognized that the prenotification could be accomplished through less burdensome means because it is provided for by the state. Furthermore, county imposed requirements would pose an undue burden on commerce because hazardous waste movement in interstate commerce is "not a subject admitting to 'diversity of treatment' ";[279] due to the potential cumulative effect of county-to-county imposition of license fees, the court found that the licensing fee would impose an undue burden on commerce.[280]

This reasoning is applicable to evaluation of the Spotsylvania ordinance. According to the modern burden-on-commerce test,[281] the ordinance would fail.

3. Could Spotsylvania County Successfully Seek a Nonpreemption Ruling Under Section 112 of the Hazardous Material Transportation Act?

Section 112 of the HMTA[282] provides that any requirement of a state

---

274. *See supra* note 249 and accompanying text.

275. *See supra* note 261 and accompanying text.

276. Telephone interview, *supra* note 247.

277. Browning-Ferris, Inc. v. Anne Arundel County, 292 Md. 136, ____, 438 A.2d 269, 270 (1981).

278. *Id.* at ____, 438 A.2d at 276.

279. *Id.*

280. *Id.*

281. *See generally Bruce Church*, 397 U.S. 137.

282. Hazardous Materials Transportation Act, Pub. L. No. 93-633, 88 Stat. 2156, 49 U.S.C. § 1811 (1975).

or political subdivision which is not consistent[283] with any requirement of the HMTA or regulation issued under the HMTA is not preempted if it can be shown that such requirement 1) affords an equal or greater level of protection to the public than is afforded by the requirements of the title or of regulations issued under the title and 2) does not unreasonably burden commerce.[284]

The Spotsylvania ordinance has been forwarded to DOT with a request for a nonpreemption ruling.[285] In light of the congressional intent behind HMTA,[286] and the cumulative burdensome effect on commerce of the requirements of the ordinance, it is reasonable to anticipate denial of a nonpreemption ruling.

4. Could Spotsylvania County Reasonably Expect Injunctive Relief?

The ordinance provides that "violation of any provision of this Chapter may be enjoined by appropriate civil proceedings."[287] Criminal and civil penalties for noncompliance with State Board of Health transportation requirements have been provided for by statute.[288] Furthermore, there is precedent for denial of an injunction against shipments of spent fuel through a Virginia municipality.[289]

A plaintiff seeking injunctive relief must show first, a likelihood of success on the merits, then, that it will suffer irreparable injury if an injunction is not granted, and last, that other parties to the action would not be substantially harmed.[290] The plaintiff in *Virginia Sunshine Alliance*, seeking an injunction against shipments of spent fuel through Portsmouth, Virginia, based its showing of irreparable harm on speculation as to the consequences of a transportation accident.[291] The showing failed; the court found that this speculation had already been considered by the

283. The basis for inconsistency between the Spotsylvania ordinance and rules promulgated under HMTA-DOT could be found in substantive differences between the two. For example, advance notification required by federal regulations requires "postmark at least seven days before the beginning of the seven day period during which departure of the shipment is estimated to occur". 10 C.F.R. § 71.5b(a). The Spotsylvania ordinance requires notification 90 days prior to shipment. § 22-3(a); *see also* 49 C.F.R. § 177, app. A (1981).

284. 49 U.S.C. § 1811 (1975).

285. Telephone interview, *supra* note 247.

286. For a discussion concerning congressional intent to avoid multiplicity of state and local regulations, see National Tank Truck Carriers, Inc. v. Burke, 608 F.2d 819 (1st Cir. 1979).

287. Spotsylvania County, Va., Ordinance to Regulate Transportation of Nuclear Materials § 22-6(b) (March 23, 1983).

288. VA. CODE ANN. § 18.2-278.3 (Repl. Vol. 1982).

289. Virginia Sunshine Alliance v. Hendrie, 477 F. Supp. 68 (D.D.C. 1979).

290. *Id.*

291. *Id.*

NRC in its approval of shipping routes.[292]

Furthermore, it has been ruled that DOT routing regulations are "rationally related to the statute's policy of developing acceptable levels of public safety for each mode of transportation" and therefore provide adequate safeguards.[293] In addition, psychological impact of fear on a community is not a "cognizable environmental impact."[294] Therefore, psychological harm would not figure into a showing of irreparable harm.

In seeking an injunction against violations of the county ordinance, Spotslyvania's showing of irreparable harm would have to consist of speculation as to the consequences of an accident, and would not include a showing of adverse psychological impact on the community. Accordingly, Spotsylvania County would probably not be awarded injunctive relief.

V. Conclusion

The Supreme Court in *Northern States* and *Pacific Gas & Electric* indicates that unless there is clear and manifest congressional intent to the contrary, state regulation of nuclear power plants will not be preempted. Section 274's vague statutory construction and legislative history reveal a less than clear intent from Congress to preempt state and local regulation of nuclear waste disposal. Although subsection 274(k) authorizes state and local governments to regulate for purposes other than protection against radiation hazards, a majority of courts neglect to make the essential purpose inquiry. Even though a recent Supreme Court decision permits states, in limited circumstances, to impose moratoriums on the construction of nuclear power plants, the Court specifically rejected the idea of state regulation of the construction and operation of already existing power plants.

The Nuclear Waste Policy Act provides timely legislation as to preemption over permanent waste disposal, but its preemptive effect over interim storage is far less clear. Because of esoteric preemption principles and vague congressional precepts, state and local governments such as Louisa County are provided little if any guidance as to what they may regulate in the area of nuclear wastes. Although the scope of state regulation has been narrowed by recent legislation, Congress must provide a more defined role for state and local governments in the disposal of nuclear wastes.

The roles of state and local governments with respect to transportation of nuclear wastes have become more defined, so that there should be little question as to where responsibilities lie. Therefore, citizens' groups and

---

292. *Id.*
293. City of New York v. Department of Transp., 715 F.2d 732, 741 (2d Cir. 1983).
294. *Id.* at 751.

local governments which attempt to establish separate standards for transportation procedures are engaging in an ineffective endeavor. The effective course of dealing with the fears and insecurities associated with transportation of nuclear waste must be on the state level. Expansion of training programs for local personnel and augmentation of local equipment must be accelerated. Prompt and efficient use of the Emergency Preparedness Fund can facilitate improvement of local accident preparedness to the point that transportation of nuclear wastes will not be a source of fear and apprehension among citizens.

Marvin Swift
Maris M. Wicker

ADDENDUM

On December 2, 1984, the Department of Transportation announced that state and local regulations that attempt to restrict transport of spent nuclear fuel, are inconsistent with federal law and are preempted by the Hazardous Materials Transportation Act of 1974.[1] The Department examined restrictions, imposed by seven state and local governments, which link a transportation permit to a notification requirement.[2] "The uncoordinated, unilateral imposition of local bans and other severe restrictions on radioactive materials transportation has the effect of rerouting shipments in a chaotic, unpredictable manner that is damaging to overall public safety."[3]

1. *See supra* notes 191-94 and accompanying text.
2. Among the restrictions examined were those imposed by the New York State Thruway Authority. *See supra* notes 220-21 and accompanying text.
3. Richmond Times Dispatch, Dec. 3, 1984, at 1, col. 3.