

1976

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Recommended Citation

Richard F. Yates, *Preemption under the Atomic Energy Act of 1954: Permissible State Regulation of Nuclear Facilities' Location, Transportation of Radioactive Materials and Radioactive Waste Disposal*, 11 *Tulsa L. J.* 397 (1976).

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PREEMPTION UNDER THE ATOMIC ENERGY ACT OF 1954: PERMISSIBLE STATE REGULATION OF NUCLEAR FACILITIES' LOCATION, TRANSPORTATION OF RADIOACTIVE MATERIALS AND RADIOACTIVE WASTE DISPOSAL

The doctrine of preemption arises from the "supremacy clause" of the United States Constitution which elevates federal law above that of the states.¹ State laws are not permitted to clash with constitutional federal enactments and those which offend this principle are unconstitutional and void.²

Inextricably interwoven with the question of preemption is a determination that the supervening federal statute is constitutional. To be thus it must have been enacted pursuant to one of the enumerated powers of Congress specified in article I, section 8.³ At one time the tenth amendment⁴ was also given some significance in interpreting the delegation of authority to Congress, but for over thirty years has been regarded as simply a truism (viz., whatever was not delegated to Congress is reserved to the states⁵).

The existence of a comprehensive federal plan governing a particular subject raises the spectre of preemption. The Atomic Energy Act of 1954⁶ presents such a situation.

1. U.S. CONST. art. VI, cl. 2 provides:

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.

2. *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824).

3. *Northern States Power Co. v. Minnesota*, 447 F.2d 1143, 1146 (8th Cir. 1971), *aff'd*, 405 U.S. 1035 (1972).

4. U.S. CONST. amend. X provides: "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."

5. *Estep & Adelman, State Control of Radiation Hazards: An Intergovernmental Relations Problem*, 60 MICH. L. REV. 41, 45 (1961) [hereinafter cited as *Estep & Adelman*].

6. Ch. 1073, 68 Stat. 921 (1954), 42 U.S.C. §§ 2011-2296 (1970). The Act was originally passed in 1946 but was completely revised in 1954.

At the outset it should be noted that the constitutionality of the Atomic Energy Act stands on firm ground and never has been questioned.⁷ But with the growing interest in the development of atomic energy and its attendant hazards, a number of states have attempted to enter the field by passing legislation which purports to regulate these matters.⁸ The problem is to determine which of these are areas of legitimate state concern and which have been precluded by the Atomic Energy Act.

The following study is not intended to be exhaustive. It merely explores the permissible limits of state regulation in three areas: nuclear power plant and production facility siting, the transportation of radioactive materials and the disposal of radioactive wastes.

AN OVERVIEW OF THE FEDERAL STATUTORY SCHEME:
THE 1946 ACT, THE 1954 ACT AND THE 1959 AMENDMENT

Federal involvement with civilian uses of atomic energy began with the Atomic Energy Act of 1946.⁹ This legislation quickly followed the successful demonstration of nuclear fission by the Manhattan project architects and was drafted with a conscious awareness of the awesome potential of this new and unfamiliar power source.¹⁰ With its primary objective being to ensure the common defense and security,¹¹ the Act established a virtual government monopoly over the peacetime uses of nuclear energy.¹²

The Atomic Energy Commission (AEC) was created¹³ and vested

7. See Estep & Adelman, *supra* note 5, at 44-50. The law was enacted by Congress pursuant to its powers to regulate interstate commerce (U.S. CONST. art. I, § 8, cl. 3), to provide for the common defense and security (U.S. CONST. art. I, § 8, cls. 11-14) and to make rules respecting United States property and territory (U.S. CONST. art. IV, § 3, cl. 8). Estep & Adelman, *supra* note 5, at 46.

8. 5 CCH ATOM. EN. L. REP. ¶ 16,503 (1967).

9. Atomic Energy Act of 1946, ch. 724, 60 Stat. 755, now Atomic Energy Act of 1954, 42 U.S.C. §§ 2011-2296 (1970).

10. Atomic Energy Act of 1946, ch. 724, § 1(a), 60 Stat. 755.

11. *Id.*, 60 Stat. 756.

12. *Id.* § 1(b)(4), 60 Stat. 756. The Act did not deprive the states of their traditional authority over three major sources of radiation: (1) naturally occurring radioactive materials (other than "source materials" as defined in note 15 *infra*); (2) X-ray apparatus; and (3) atomic particle accelerators. Helman, *Pre-Emption: Approaching Federal-State Conflict over Licensing Nuclear Power Plants*, 51 MARQ. L. REV. 43, 54 (1967) [hereinafter cited as Helman].

13. Atomic Energy Act of 1946, ch. 724, § 2(a)(1), 60 Stat. 756. In 1974 the Atomic Energy Commission was abolished and replaced by two other agencies, the Energy Research and Development Administration and the Nuclear Regulatory Commission. Energy Reorganization Act of 1974, Pub. L. No. 93-438, 88 Stat. 1233.

with ownership¹⁴ of all facilities producing fissionable materials.¹⁵ These were to be operated by the AEC or under contract with the AEC.¹⁶ Similarly, fissionable materials¹⁷ and byproduct materials¹⁸ were to be owned and controlled by the AEC. Source materials¹⁹ and the utilization of fissionable materials²⁰ were to be regulated by licensing procedures.

Between 1946 and 1954 there was extensive development of the peaceful uses of atomic energy. In an effort to broaden the scope and increase the intensity of these activities, Congress passed the Atomic Energy Act of 1954²¹ which brought to an end the government monopoly over nuclear energy and sought to promote the growth of this industry in the private sector.²² Consonant with this aim the new legislation marked a departure from the approach taken by its predecessor in several significant respects.

The 1954 Act permitted, for the first time, the private ownership and operation of production facilities, the private ownership of byproduct materials and the leasing of special nuclear materials.²³ In exchange for this relinquishment of ownership and control by the

14. Atomic Energy Act of 1946, ch. 724, § 4(c)(1), 60 Stat. 759.

15. [T]he term 'fissionable material' means plutonium, uranium enriched in the isotope 235, any other material which the Commission determines to be capable of releasing substantial quantities of energy through nuclear chain reaction of the material, or any material artificially enriched by any of the foregoing; but does not include source materials

Id. § 5(a)(1), 60 Stat. 760. "[T]he term 'source material' means uranium, thorium, or any other material which is determined by the Commission . . . to be peculiarly essential to the production of fissionable materials" *Id.* § 5(b)(1), 60 Stat. 761.

In the Atomic Energy Act of 1954 the term "special nuclear material" has been substituted for that of "fissionable material," although the definitions are substantially the same. See Atomic Energy Act of 1954, § 11(t), 42 U.S.C. § 2014(aa) (1970).

16. Atomic Energy Act of 1946, ch. 724, § 4(c)(2), 60 Stat. 759.

17. *Id.* § 5(a)(2), 60 Stat. 760.

18. *Id.* § 5(c)(2), 60 Stat. 763. "[T]he term 'byproduct material' means any radioactive material (except fissionable material) yielded in or made radioactive by exposure to the radiation incident to the processes of producing or utilizing fissionable material." *Id.* § 5(c)(1), 60 Stat. 763.

19. *Id.* § 5(b)(2), 60 Stat. 761. Source materials are defined in note 15 *supra*. The AEC's jurisdiction over source material commenced "after removal from its place of deposit in nature." *Id.*

20. *Id.* § 7(a), 60 Stat. 764.

21. Ch. 1073, 68 Stat. 921 (1954), 42 U.S.C. §§ 2011-2296 (1970).

22. Helman, *supra* note 12, at 53.

23. *Id.*; see Atomic Energy Act of 1954 §§ 101, 53(c), 42 U.S.C. §§ 2131, 2093(c) (1970); Atomic Energy Act of 1954 § 81, 42 U.S.C. § 2111 (Supp. IV, 1974); Cavers, *State Responsibility in the Regulation of Atomic Reactors*, 50 KY. L.J. 29 (1961) [hereinafter cited as Cavers]. In 1964 the Act was further amended to allow for private ownership of special nuclear materials. Act of Aug. 26, 1964, Pub. L. No. 88-489, § 4, 78 Stat. 603.

government, conditions were imposed in the form of a pervasive licensing and regulatory scheme to guard against radiation hazards.²⁴ This new format also engendered a shift in roles for the AEC from those of exclusive developer and contract administrator to those of promoter-sponsor and regulator of private development.²⁵ The goals of the 1954 Act saw a change in emphasis as well, now evincing a legislative design to spur the development of atomic energy in the interest of the general welfare and an increased standard of living "to the maximum extent consistent with the common defense and security and with the health and safety of the public"²⁶

With the great increase in the intensity and diversity of atomic energy use, Congress witnessed a greater need for control to be exerted at the local level.²⁷ In 1959 the Atomic Energy Act was amended to allow the AEC to share some of its regulatory authority with any state upon the execution of an agreement between its governor and the AEC.²⁸ The purposes expressed in the 1959 amendment reflected a dual desire to effectuate a coordinated, orderly and effective regulatory plan and to clarify the respective responsibilities of the states and the AEC.²⁹

The origins and development of the federal statutory complex governing atomic energy display an evolving congressional policy with respect to the peaceful uses of the atom. Federal involvement began with the discovery of nuclear fission and, except for those sources of radiation traditionally regulated by the states,³⁰ there was absolute federal control in the form of a governmental proprietorship.³¹ In an effort to exploit the burgeoning interest of private industry, Congress

24. E. STASON, S. ESTEP & W. PIERCE, *ATOMS AND THE LAW* 1223 n.68 (1959) [hereinafter cited as *ATOMS AND THE LAW*].

25. Helman, *supra* note 12, at 55.

26. Atomic Energy Act of 1954 § 3(d), 42 U.S.C. § 2013(d) (1970).

27. Helman, *supra* note 12, at 55.

28. Atomic Energy Act of 1954 § 274, 42 U.S.C. § 2021 (1970).

29. *Id.* § 274(a), 42 U.S.C. § 2021(a) (1970).

30. *See* note 12 *supra*.

31. Although the federal government only owned the facilities producing fissionable materials, the fissionable materials themselves and by-product materials, this was enough to establish a government monopoly. Obviously, the distribution of fissionable materials was under the absolute control of the AEC and without fissionable materials there could be no nuclear fission. Because the federal government began to control nuclear fission at the time of its discovery and established such a complete program for control, it has been suggested that states possess no historic police powers over atomic energy per se. *See Recent Cases, Environmental Law—Implied Federal Pre-emption—States Precluded from Regulating Radioactive Emissions from Nuclear Power Plants*, 37 *MO. L. REV.* 106, 115-116 (1972).

supplanted the system of direct government ownership and operation with a comprehensive regulatory scheme which allowed the federal government to retain its sweeping control over radiation hazards. Throughout this period and until the passage of the 1959 amendment, reference to the states' authority respecting these matters is conspicuously absent. The 1959 amendment acknowledged limited authority in the states to regulate radiation hazards, but only upon the execution of an agreement with the AEC.

The foregoing considerations had induced authorities, far in advance of any litigation on the subject, to take the position that the federal government had preempted the field.³² Recently, the Supreme Court verified those predictions when it affirmed an Eighth Circuit decision which had so held.³³

PRECLUSION UNDER THE ATOMIC ENERGY ACT OF 1954:
THE NORTHERN STATES DECISION

A privately owned electric power company constructed a nuclear fueled electric generating plant under the authority of a provisional permit issued by the AEC. Subsequently, the company sought a waste disposal permit from the state pollution control agency as required by state law for the discharge of pollutants. The waste disposal permit was issued, but subject to conditions regulating the radioactivity level of effluent from the plant. The restrictions covered the same areas as, but were considerably more stringent than, the AEC regulations imposed under federal law. The company challenged the constitutionality of the state controls, charging that they were precluded under the Atomic Energy Act of 1954. The district court held for the company³⁴ and the Eighth Circuit affirmed in *Northern States Power Co. v. Minnesota*:³⁵ "[T]he federal government has exclusive authority under the doctrine of pre-emption to regulate the construction and operation of nuclear power plants, which necessarily includes regulation of the levels of radioactive effluents discharged from the plant."³⁶

32. ATOMS AND THE LAW, *supra* note 24, at 1058-74; Estep & Adelman, *supra* note 5, at 79; Helman, *supra* note 12, at 67. The AEC has consistently maintained that there was preemption. See 10 C.F.R. § 8.4 (1975).

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

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

35. 447 F.2d 1143 (8th Cir. 1971), *aff'd mem.*, 405 U.S. 1035 (1972).

36. *Id.* at 1154. *But see* *Colorado Pub. Interest Research Group v. Train*, 507 F.2d 743 (10th Cir. 1974). There the Tenth Circuit held that the discharge of radioactive materials into navigable waters from a nuclear power plant came under the jurisdiction

Limited to its facts the ruling in *Northern States* is not dispositive of the present inquiry because its precise holding is quite narrow. Nevertheless, the well-reasoned analysis used by the court will undoubtedly serve as compelling authority for all future issues of preclusion arising under the Atomic Energy Act. This conclusion is fortified by the consideration that there are no other federal cases specifically addressing this question in the nuclear energy area.³⁷

The Eighth Circuit prescribed in a three-prong test for finding a state's regulation preempted. First, where the state laws are in such irreconcilable conflict that compliance with both is a "physical impossibility," the state law must yield to the supervening federal Act.³⁸ Second, in the absence of such a direct clash, if Congress has declared "unequivocally and expressly" that the authority it grants shall be exclusive, then concurrent or complementary state regulation within the occupied field is barred.³⁹ Third, even where there is no direct conflict between the statutes and although Congress has not expressly declared its intent that federal regulation should be exclusive, a court may infer an intent to preempt based on: (1) the development and legislative history of the statute, (2) the pervasiveness of the regulatory scheme it establishes and the regulations enacted pursuant to it, (3) the nature of the subject matter regulated and whether it demands uniformity of treatment, and (4) whether in a particular case the challenged state law stands as an obstacle to the achievement of the objectives of Congress.⁴⁰

The state statute in question did not conflict with the federal law⁴¹ and Congress had not expressly declared an intent to preempt under the Atomic Energy Act,⁴² but the court proceeded to determine that

of the Environmental Protection Agency pursuant to the Federal Water Pollution Control Act amendments of 1972, 33 U.S.C. §§ 1251-1265, 1281-1291, 1311-1328, 1341-1345, 1361-1376 (Supp. IV, 1974). Since states may set the water quality standards under the Federal Water Pollution Control Act (33 U.S.C. § 1160(c) (1970)), then under the Tenth Circuit decision they may regulate radioactive discharge into waterways. This flies in the face of the *Northern States* decision.

37. However, some state courts have considered the subject. See *Boswell v. City of Long Beach*, 1 CCH ATOM. EN. L. REP. ¶ 4045 (Cal. 1960); *Commonwealth Edison Co. v. Pollution Control Bd.*, 5 Ill. App. 3d 800, 284 N.E.2d 342 (1972). They have also found state regulation preempted.

38. 447 F.2d at 1146.

39. *Id.*

40. *Id.* at 1146-47.

41. *Id.* at 1147.

42. *Id.*

such an intent should be implied, relying most heavily on the first of the four factors mentioned above.⁴³

It should be observed that the doctrine of preemption is nothing more than a means of testing the allowable degree of interference between state and federal regulation. With this consideration in mind and the basic workings of the *Northern States* case exposed, a decision-making framework can be prescribed for identifying the permissible bounds of state regulation concerning nuclear activities. Generally, it appears there are four possible situations of relative federal-state involvement which will determine the fate of the particular state regulation.

Direct Conflict

If the state statute directly conflicts with federal regulations such that compliance with both is a physical impossibility, then the state statute is void.⁴⁴ This has been extended to include situations where the state regulation conflicts with the *policy* of the federal statute even though there was no direct clash with any particular federal provision.⁴⁵

The policy of the Atomic Energy Act is to maintain the proper balance between the development of atomic energy and the protection of persons and property against radiological hazards.⁴⁶ Then, arguably, every state statute which unreasonably restricts the location or conduct of nuclear activities within its jurisdiction is preempted by the Atomic Energy Act.⁴⁷

Regulation Outside of the Preempted Field

At the other end of the spectrum is the situation where the state attempts to regulate matters not within the field of the federal statute's operation. This right is reserved to a state under the tenth amend-

43. See *id.* at 1147-52. In particular, the court found the legislative history of the 1959 amendment to be most persuasive, especially in light of its expressed purpose to clarify the respective federal-state responsibilities in the nuclear field. See note 29 *supra* and accompanying text.

44. See note 38 *supra* and accompanying text.

45. Note, "Occupation of the Field" in *Commerce Clause Cases, 1936-1946: Ten Years of Federalism*, 60 HARV. L. REV. 262, 263 (1946) [hereinafter cited as *Occupation of the Field*]. This is essentially an alternative way of viewing the fourth factor considered in *Northern States* for a finding of implied congressional intent to preempt. See note 40 *supra* and accompanying text.

46. See note 26 *supra* and accompanying text.

47. However, this may be just another way of saying that state regulation within the preempted field is prohibited. See note 51 *infra* and accompanying text.

ment.⁴⁸ However, to apply this principle it is necessary to define the boundaries of the field covered by the federal enactment.⁴⁹ The *Northern States* decision provides some assistance in this regard.

Carried to its logical end, the court's language suggests that the field occupied by the Atomic Energy Act is that of the regulation of radiological health and safety. This was the concern addressed by the licensing requirements established by the 1954 Act as a prerequisite to private ownership.⁵⁰ And it would be unnecessary for a state to enter into an agreement with the AEC pursuant to section 274 of the Atomic Energy Act⁵¹ to gain some limited regulatory powers in this field, unless it were already fully occupied by the federal statute.⁵² Also, each and every one of the pervasive strictures prescribed by the Act concerns precisely this subject.⁵³ Finally, only the uniformity characteristic of federal superintendence could ensure the achievement of an important congressional objective by striking the proper balance between the promotion of nuclear energy and the protection of the public against radiological hazards.⁵⁴

Technically, the field covered by the Act does not extend beyond the regulation of radiological health and safety. Subsection (k) of section 274 stipulates 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."⁵⁵ Furthermore, the AEC has consistently maintained that it lacks authority under the Atomic Energy Act to consider anything but radiation effects.⁵⁶ However, even a state statute which does not purport to

48. See note 4 *supra*. This assumes, of course, that there is no direct conflict with any other federal statute or regulation.

49. *Occupation of the Field*, *supra* note 45, at 266.

50. 447 F.2d at 1150.

51. See note 28 *supra* and accompanying text. Section 274 is the 1959 amendment.

52. 447 F.2d at 1149.

53. *Id.* at 1152-53.

54. *Id.* at 1153-54.

55. 42 U.S.C. § 2021(k) (1970). The *Northern States* court also found this section useful as evidence of an implied congressional intent to preempt. "Unless the federal government possessed exclusive authority over radiation hazards, the inclusion of the [words 'other than protection against radiation hazards'] would have been meaningless and unnecessary." 447 F.2d at 1150.

56. See *New Hampshire v. Atomic Energy Comm'n*, 406 F.2d 170 (1st Cir.), *cert. denied*, 395 U.S. 962 (1969). See also *Calvert Cliffs Coordinating Comm. v. Atomic Energy Comm'n*, 449 F.2d 1109 (D.C. Cir. 1971), where the court held that the AEC was required to consider nonradiological factors in its preparation of an environmental impact statement pursuant to the National Environmental Policy Act; Note, *Federal and State Responsibilities in the Environmental Control of Nuclear Power Plants*, 2 N.Y.U.

regulate radiation hazards may be struck down if it “‘stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.’”⁵⁷

Between the two extremes discussed above are the situations of “concurrent” and “complimentary” regulation within the occupied field.⁵⁸ If Congress had expressly declared its intention that the field of radiological hazard regulation was preempted, then it would be clear that neither concurrent nor complementary regulation would be permitted by a state.⁵⁹ *Northern States* only found an implied intent to preempt.⁶⁰ Therefore, it is necessary to determine whether the situation is altered by this fact.

Concurrent Regulation

Closely adhering to the legislative history and the language of the 1959 amendment, *Northern States* concluded that where a federal

REV. L. & SOC. CHANGE 20, 30-41 (1972) [hereinafter cited as *Environmental Control of Nuclear Power Plants*].

57. 447 F.2d at 1147. See note 45 *supra* and accompanying text. This would most likely happen where a state had enacted statutory provisions which were uniquely applicable to nuclear facilities and activities (see notes 97-102 *infra* and accompanying text). An alternative way of viewing this situation which stays within the theoretical bounds of preemption defined earlier would be the following: arguably, the only significant differences between nuclear and nonnuclear activities is the existence of radiological hazards in the case of the former. Because of this, a statute which singles out nuclear facilities and activities for special treatment is attempting to regulate radiological health and safety, regardless of its ostensible purpose. Therefore, state legislation which discriminates against the nuclear industry might be invalid since the Atomic Energy Act has preempted the field of regulation of radiation hazards. (This also suggests the question of what state regulation is permissible within an occupied field, discussed in the text immediately following this note.)

58. The term “concurrent” refers to state and federal statutes regulating the *same* aspect of the same field. It should be contrasted with the term “complementary” which refers to state and federal statutes regulating *different* aspects of the same field. Under the Atomic Energy Act the field theoretically preempted is the regulation of radiation hazards (see discussion in text immediately preceding this note). The subjects of nuclear facility siting, transportation of radioactive materials, and the disposal of radioactive wastes represent some aspects of this field.

59. See note 39 *supra* and accompanying text.

60. See notes 42-43 *supra* and accompanying text. An express intent to preempt is almost never present. In fact, Congress explicitly rejected a proposal to include in the 1959 amendment a clear delineation of those areas over which the AEC was to have sole authority. *Hearings on Federal-State Relations Before the Joint Committee on Atomic Energy*, 86th Cong., 1st Sess. 307-308 (1959). Mr. Lowenstein (Office of the General Counsel, AEC) stated in the committee hearings:

We thought that this act without saying so in so many words did make clear that there is pre-emption here, but we have tried to avoid defining the precise extent of that pre-emption, feeling that it is better to leave these kinds of detailed questions perhaps up to courts later to be resolved.

Id. at 308.

regulation under the Atomic Energy Act sets a particular standard the state will not be permitted to impose a stricter standard.⁶¹ And from what appears above, it is clear that a state could not successfully enforce a more lenient standard.⁶² However, *Northern States* does not consider the visibility of concurrent state regulations which are identical to those adopted by the AEC.⁶³

The possibility of *limited* regulation of radiation hazards through the medium of uniform federal standards presents an interesting approach for a state to follow. This would satisfy some states seeking greater control over the nuclear industry,⁶⁴ would be in harmony with the policy dictates of the Atomic Energy Act demanding uniform controls and would aid the AEC in enforcement of its regulations. As mentioned earlier, section 274 of the Act provides for an agreement with the AEC which allows for delegation of such authority to a state.⁶⁵

Nevertheless, there are certain features of this pact which distinguish it from the situation of mere unauthorized concurrent enforcement of the uniform federal regulations. First, the Act sets certain conditions which must be met by the state before it can enter into such an agreement.⁶⁶ These largely concern the capability of the state to regulate in the area ceded to it by the AEC and the compatibility of the state's program with the AEC's program.⁶⁷ Furthermore, the AEC may terminate the agreement if the state is not competently exercising

61. 447 F.2d at 1153-54.

62. This would be in direct conflict with the supervening federal law. See note 44 *supra* and accompanying text.

63. The legislative history of the 1959 amendment does not appear to foreclose this possibility either. The committee report which accompanied the bill said: "It is not intended 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 . . ." S. REP. NO. 870, 86th Cong., 1st Sess. 11 (1959). But, in continuing, the legislators identified their real concern and the significance they attached to the terms "dual or concurrent jurisdiction":

The Joint Committee believes that it is important to emphasize that the radiation standards adopted by states under the agreement of this bill should either be identical or compatible with those of the Federal Government . . . [and] recognizes . . . the dangers of conflicting, overlapping, and inconsistent standards in different jurisdictions, to the hinderance of industry and jeopardy of public safety.

Id. (emphasis added).

64. However, it would not enable a state to set its own safety standards as Minnesota was attempting to do in *Northern States*.

65. Atomic Energy Act of 1954 § 274, 42 U.S.C. § 2021 (1970). Currently, there are twenty-five "agreement" states. 5 CCH ATOM. EN. L. REP. ¶ 16508 (1974).

66. Atomic Energy Act of 1954 § 274(d), 42 U.S.C. § 2021(d) (1970).

67. As a practical matter this means that the "agreement" state adopts applicable federal regulations. See, e.g., transportation of radioactive wastes, note 120 *infra* and accompanying text.

this authority.⁶⁸ Second, under this agreement the state is acting with authority delegated to it by the AEC.⁶⁹ Thus, in executing such a contract a state is relieved from a preemption attack regarding matters covered by the agreement because it is acting as an agent of the federal government. Third, while such an agreement is in effect, the AEC is actually supplanted with respect to the matters it covers.⁷⁰ Therefore, the problem of dual controls which ordinarily appears with concurrent regulation in an occupied field does not exist.

Despite these qualifications, a "nonagreement" state which adopts and enforces the uniform federal standards is not likely to have its statute challenged, *provided that it has demonstrated a capability to properly enforce these regulations and that it limits regulation to that which would be permitted if it had entered into a formal agreement with the AEC.*⁷¹ This is true because the dual congressional objectives of promoting nuclear energy and protecting against radiation hazards would be well served by a state ably acting in such a capacity. Furthermore, in an enforcement proceeding the AEC would be likely to cooperate with, rather than oppose, the prosecuting state for two reasons: first, such efforts assist that agency in its enforcement procedures; second, the failure to do so by that agency would amount to an admission of an unwillingness to enforce its own regulations.

Assuming that the only conflict is over the issue of preemption (*viz.*, there is an admitted violation of the regulation in question), then whichever side the AEC chooses to be on will prevail, since it and only

68. Atomic Energy Act of 1954 § 274(j), 42 U.S.C. § 2021(j) (1970).

69. *Id.* § 274(b), 42 U.S.C. § 2021(b) (1970).

70. *Id.*

71. See *California v. Zook*, 336 U.S. 725 (1949), where the Court sustained a state law penalizing interstate carriers for operating without an ICC permit; *ATOMS AND THE LAW*, *supra* note 24, at 1074. Illinois currently regulates "low level" radioactive waste disposal under the uniform federal standards it has adopted, although it is not an "agreement" state. See note 144 *infra* and accompanying text.

A strong case can be made for limiting the extent of regulation by a "nonagreement" state to that which would be allowed under an agreement with the AEC. The 1959 amendment which authorizes these agreements has been used as an important index of congressional intent concerning the respective federal-state roles under the Atomic Energy Act. (See note 43 *supra* and accompanying text.) Since Congress has provided that certain responsibilities may not be delegated to a state under this agreement, it is not likely that a court would sustain a state's attempt to regulate these matters absent such an agreement. (However, New York has reserved the constitutional rights and powers it possesses independent of the agreement in its pact with the AEC, apparently believing that it has some authority in the field of radiation hazard regulation apart from that delegated to it under the contract. 5 CCH ATOM. EN. L. REP. ¶ 16508 (1974).)

it has the authority to issue such regulations.⁷² Additionally, persons regulated by the state, realizing these facts, are not likely to engage in fruitless litigation challenging the state's authority in the first place. Hence, the adoption and enforcement of the uniform federal standards to the extent that would be allowed by a section 274 agreement would render academic the question of a state's authority to regulate in this fashion.

Complementary Regulation

Generally speaking, the regulations issued pursuant to the Atomic Energy Act are comprehensive.⁷³ But, as will be seen later, the AEC has not exercised the full limit of its statutory authority with respect to certain activities. Where a federal agency has failed to act, may a state fill the gaps left by the agency's regulations in an occupied field? The *Northern States* decision leaves this question unanswered, but there is authority to suggest that a state may regulate in such a situation if interference with the federal master plan is kept to a minimum.⁷⁴ "[T]he problem is one of balancing the evils attendant upon the imposition of another regulating agency set of rules against the harm to be done by leaving the industry some particular unregulated."⁷⁵

It would be desirable to again examine the permissible bounds of authority under a section 274 agreement in order to prescribe rules for state regulation absent such an agreement. Unfortunately, that analysis is not so handily applied here. By implication, an "agreement" state is given authority to regulate in a complementary manner provided that its regulations are compatible with the AEC's program.⁷⁶ However, since there are no federal regulations on the particular aspect of the field in question, how does one determine what is compatible with the federal program? This question is easily answered in the area of transportation where the Department of Transportation has issued regulations governing *interstate* transportation of radioactive materials which a state can readily adopt and apply to *intrastate* shipments.⁷⁷ Con-

72. This is simply another way of saying that Congress has preempted the field.

73. *ATOMS AND THE LAW*, *supra* note 24, at 1059.

74. *Maurer v. Hamilton*, 309 U.S. 598 (1940); *Northwestern Bell Tel. Co. v. Nebraska State Ry. Comm'n*, 297 U.S. 471 (1936). See generally *Occupation of the Field*, *supra* note 45, at 266-270.

75. *Occupation of the Field*, *supra* note 45, at 266.

76. See Atomic Energy Act of 1954 §§ 274(b), (d), 42 U.S.C. §§ 2021(b), (d) (1970).

77. See notes 112-115 *infra* and accompanying text.

versely, the gaps left by the AEC in other areas, plant site location for example, do not come within the jurisdiction of other federal agencies.

APPLICATION OF THE PREEMPTION DOCTRINE:
PERMISSIBLE STATE REGULATION OF NUCLEAR REACTOR AND
PRODUCTION FACILITY SITING, TRANSPORTATION OF
NUCLEAR MATERIALS AND NUCLEAR
WASTE DISPOSAL

Discussion in this area will be devoted to an examination of particular sections of the Atomic Energy Act and the regulations promulgated pursuant to them as they bear on various types of state legislation which could be enacted. The freedom of state regulation in a particular area will ultimately depend on which of the four aforementioned categories it falls within. The federal statute and regulations are givens, thus, only the terms and emphasis of the state legislation can be varied to minimize interference with the federal scheme and guide it away from the prohibitions of the preclusion doctrine.

The following exposition is intended to illustrate the pitfalls associated with certain types of state legislation and hopefully will prevent the adoption of legislation which comes dangerously close to the preclusion bar. In the following areas of discussion repeated reference will not be made to the first category of federal-state interference, but it must be remembered that this cardinal rule under the preemption doctrine applies with equal force throughout: any state statute which irreconcilably conflicts with the federal law is unconstitutional and void.

Nuclear Reactor and Production Facility Siting Regulation

The location of nuclear facilities is a matter of vital concern to a state. It is also an area in which reasonable regulation by the state is likely to remain uncontested by the AEC.⁷⁸ This is true because in the area of land use planning there is a full array of concerns which fall outside the field of regulation for radiological health and safety.⁷⁹ However, as of September 1974 only eighteen states had passed power plant siting laws and to the extent that this right is left unexer-

78. See *Northern California Ass'n v. Public Util. Comm'n*, 61 Cal. 2d 126, 390 P.2d 200, 37 Cal. Rptr. 432 (1964); *Cavers*, *supra* note 23, at 50; *Estep & Adelman*, *supra* note 5, at 61.

79. For example, guarding against thermal pollution and ensuring organized community development represent planning considerations distinct from a concern over radiation dangers.

cised by the states it will undoubtedly be taken over by the federal government.⁸⁰

Of course, to some degree the regulation of radiological hazards depends upon the location of nuclear facilities. And to this extent the Atomic Energy Act authorizes action by the AEC. Section 101 of the Act⁸¹ establishes a licensing requirement for a broad range of activities relating to production and utilization facilities, including the manufacture, production, acquisition, possession and use thereof. Sections 103⁸² and 104⁸³ authorize the AEC to issue licenses for commercial and medical or research purposes, respectively.

Complementing these grants of authority is section 161⁸⁴ which defines the broad scope of the AEC's general powers. Relevant portions include subsection (i)(3) which empowers the AEC to issue regulations "to govern any activity authorized pursuant to [the Atomic Energy Act], including standards and restrictions governing the design, location, and operation of facilities . . . in order to protect health and to minimize danger to life or property"⁸⁵ Subsection (p) authorizes the AEC to "make . . . such rules and regulations as may be necessary to carry out the purposes of this act."⁸⁶

It is apparent that the AEC's authority regarding site selection is plenary insofar as radiological health and safety are concerned. However, that agency has not acted to the full extent of its authority in this area. Regulations promulgated pursuant to the aforementioned sections of the Atomic Energy Act establish a license requirement for production and utilization facilities⁸⁷ and require the submission of a report by the prospective licensee describing their proposed location,⁸⁸

80. SOUTHERN INTERSTATE NUCLEAR BOARD, POWER PLANT SITING IN THE UNITED STATES, at vii (1974). The Energy Policy Staff has identified the long range planning of power plant siting as a need. ENERGY POLICY STAFF, OFFICE OF SCIENCE AND TECHNOLOGY, ELECTRIC POWER AND THE ENVIRONMENT, at 3 (1970). The Energy Reorganization Act of 1974 authorized a national survey to consider the location of future nuclear energy center sites. Energy Reorganization Act of 1974 § 207 (a)(1), 42 U.S.C. § 5847(a)(1) (Supp. IV, 1974).

81. Atomic Energy Act of 1954 § 101, 42 U.S.C. § 2131 (1970).

82. *Id.* § 103, 42 U.S.C. § 2133 (1970).

83. *Id.* § 104, 42 U.S.C. § 2134 (1970).

84. *Id.* § 161, 42 U.S.C. § 2201 (1970), *as amended*, (Supp. IV, 1974).

85. *Id.* § 161(i)(3), 42 U.S.C. § 2201(i)(3) (Supp. IV, 1974).

86. *Id.* § 161(p), 42 U.S.C. § 2201(p) (1970).

87. 40 FED. REG. 8788 (1975).

88. *Id.* at 8789. This regulation references another which sets forth the specific criteria to be considered, including meteorology, hydrology, geology and seismology data necessary for evaluating measures proposed for protecting the public against possible radiation hazards. *See* 10 C.F.R. § 100.10 (1975).

but there are no specific regulations set forth regarding the preferred sites for these facilities.

Given the applicable statutory sections and regulations, what may a state permissibly regulate in the area of facility siting? To begin with, since the AEC has enacted no specific standards governing site location, no problem of concurrent regulation is presented.⁸⁹ Nevertheless, there is a possibility of complementary regulation in the field of radiological health and safety.⁹⁰

In speaking of this topic generally, the section 274 agreement was suggested as a means for identifying the bounds of justifiable state action. One condition of such an agreement is that the state's program be compatible with the federal program.⁹¹ Since the AEC has not issued specific standards for location of facilities, it is difficult to determine what state regulations might meet this requirement. Furthermore, subsection (c)(1) of section 274⁹² and corresponding regulations⁹³ prohibit the delegation of authority over "the construction and operation of any production or utilization facility . . ." ⁹⁴ to an "agreement" state. Arguably, the terms "construction" and "operation" include regulations governing the location of these facilities as well.⁹⁵ And a "nonagreement" state should not presume to exercise authority which it could not assume under an agreement with the AEC.⁹⁶ Thus, given the uncertainty associated with this area, states' attempts to regulate the radiological health and safety aspects of plant siting risk successful challenge under the preemption doctrine.

It is agreed, however, that there is a broad range of regulation open to the states in the area of site location for reasons which fall outside the radiological health and safety ambit.⁹⁷ This bifurcation (authority respecting radiological hazards in the AEC—residual authority in the states) can lead to close questions.⁹⁸ For example, the

89. See note 58 *supra* and accompanying text for an explanation of the terms "concurrent" and "complementary."

90. The question presented is whether a state may adopt specific standards governing facility location where the AEC has failed to set them.

91. See note 76 *supra* and accompanying text.

92. Atomic Energy Act of 1954 § 274(c)(1), 42 U.S.C. § 2021(c)(1) (1970).

93. 10 C.F.R. § 150.15(a)(1) (1975).

94. *Id.*

95. The court in *Northern States* gave these terms a very broad construction to include authority over discharge of radioactive effluents. 447 F.2d at 1149.

96. See note 71 *supra*.

97. See authorities cited note 78 *supra*.

98. It has also been suggested that this division of authority prevents effective re-

proximity of the site to geological faults certainly presents questions of health and safety distinct from radiological considerations, yet radiological hazards are also influenced by this variable.

A particularly close case has been suggested where a state attempts to regulate the location of nuclear facilities so as to minimize the anxieties of its residents.⁹⁹ The legitimate state concern offered to justify this action is said to be the right to ensure the orderly conduct of its affairs,¹⁰⁰ a purpose independent of protection against radiation hazards. This type of reasoning invites challenge under the preclusion doctrine. Carried to its logical end such a rationale could be used to justify laws which require the location of nuclear facilities at such a great distance from population centers that no installation could be located within a state.¹⁰¹ If this type of regulation became popular with the states, soon there would be no place left in the United States to locate a reactor. Obviously, means of this sort would be resisted and the AEC, arguing either that this was a backhanded attempt at the regulation of radiological safety or that such devices would defeat an important objective of Congress,¹⁰² would make out a case of preemption and prevail on the merits.

In order to minimize the likelihood of a statute being declared unconstitutional, a state should refrain from imposing unreasonable conditions in its regulation of nuclear plant location. Whenever possible the law should accord the same treatment to nuclear facilities as nonnuclear facilities as, for instance, in the evenhanded application of a zoning ordinance prohibiting the location of commercial and industrial operations in a residential area.¹⁰³ Only in this way can a state realistically expect to avoid the preclusion bar.

view of environmental factors in the site location decision-making process. *Environmental Control of Nuclear Power Plants*, *supra* note 56, at 32.

99. Adams, *Regulation of Health and Safety in Private Atomic Energy Activities: A Problem in Federal-State Relationships*, 27 GEO. WASH. L. REV. 163, 186-87 (1958) [hereinafter cited as Adams]; Cavers, *supra* note 23, at 51.

100. Adams, *supra* note 99, at 187.

101. For example, at one time Arizona attempted to pass a bill which would have prohibited the construction of any reactor plant within 60 miles of a city of more than 100,000 persons, or within 40 miles of a city of more than 10,000. Such a bill, if adopted by other legislatures, would have effectively outlawed reactors in 30 or more states. Cavers, *supra* note 23, at 51. The Vermont legislature has recently passed a measure which prohibits the location of nuclear powered electric generating plants within the state without the approval of the general assembly. 30 VT. STAT. ANN. § 248(c) (Supp. 1975).

102. *See* note 57 *supra* and accompanying text.

103. Cavers, *supra* note 23, at 50; Estep & Adelman, *supra* note 5, at 61. Maryland has recently adopted legislation for plant siting which has general application to all forms of power generation. See MD. ANN. CODE art. 66C, §§ 766-69 (Supp. 1975).

The Regulation of Nuclear Materials' Transportation

It is only when radioactive material is being transported from one secure location to another that it leaves the scrutiny of trained manpower, sensitive equipment and an industry well versed in radiation safety. During this time it is most vulnerable to accidental release of harmful radiation, but most important, if release occurs it may go unrecognized.¹⁰⁴

Among other types of conduct, the "transfer" and "possession" of special nuclear material, source material, by-product material, and production or utilization facilities come under the authority of the AEC to control.¹⁰⁵ These specific grants of power are augmented by section 161 which confers broad general authority upon the AEC to establish regulations "to protect health or to minimize danger to life or property . . ." ¹⁰⁶ and "as may be necessary to carry out the purposes of this act."¹⁰⁷ Notwithstanding the breadth of these provisions, the regulations promulgated pursuant to them expressly exempt common and contract carriers from licensing requirements.¹⁰⁸ Thus, although the shipper and receiver must be licensed¹⁰⁹ and packaging standards must be complied with,¹¹⁰ the AEC exerts no direct control over the transportation services carrying radioactive shipments.¹¹¹

However, this is not to say that the transportation of these materials is free from federal regulation. Under the Department of Transportation Act¹¹² the United States Department of Transportation (DOT) has regulatory responsibility for safety in the transportation of radioactive materials by all modes of transport in interstate or foreign commerce, except postal shipments.¹¹³ These regulations are adminis-

104. SOUTHERN INTERSTATE NUCLEAR BOARD, RADIOACTIVE MATERIALS TRANSPORTATION, at 2 (1973) [hereinafter cited as RADIOACTIVE MATERIALS TRANSPORTATION].

105. Atomic Energy Act of 1954 §§ 57(a), 62, 101, 42 U.S.C. §§ 2077(a), 2092, 2131 (1970); *id.* § 81, 42 U.S.C. § 2111 (Supp. IV, 1974). For definitions of these terms see notes 15 & 18 *supra*.

106. Atomic Energy Act of 1954 § 161(b), 42 U.S.C. § 2201(b) (1970).

107. *Id.* § 161(p), 42 U.S.C. § 2201(p) (1970).

108. 10 C.F.R. §§ 70.12, 40.12, 30.12 (1975) (special nuclear material, source material and byproduct material, respectively); 40 FED. REG. 8788 (1975) (production and utilization facilities).

109. 10 C.F.R. §§ 70.3, 40.3, 30.3 (1975); 40 FED. REG. 8788 (1975).

110. 10 C.F.R. Part 71 (1975). See note 113 *infra*.

111. 1 CCH ATOM. EN. L. REP. ¶ 4005 (1971).

112. Act of Oct. 15, 1966, Pub. L. No. 89-670, 80 Stat. 931.

113. RADIOACTIVE MATERIALS TRANSPORTATION, *supra* note 104, at 31. Under a memorandum of understanding signed March 22, 1973 (which supercedes a 1966 agreement between AEC and DOT), DOT is to regulate handling and shipping of radioactive material, while the AEC is to evaluate and approve package design. *Id.* at 16. See note 110 *supra* and accompanying text. DOT regulations concerning packaging are found in 49 C.F.R. Parts 170-189 (1975).

tered by the particular DOT subordinate agency which has jurisdiction over the type of carrier involved.¹¹⁴ Postal shipments are regulated by the United States Postal service.¹¹⁵

Since the AEC has not adopted regulations governing transportation, there is no problem of concurrent regulation of radiological health and safety under the Atomic Energy Act.¹¹⁶ But attempts to regulate interstate shipments raise questions of concurrent regulation under the Transportation Act and of complementary regulation under the Atomic Energy Act. Under these circumstances it is doubtful that a state would be permitted to regulate in any manner other than by adopting the DOT controls.¹¹⁷

On the other hand, a far more important question is whether a state may regulate *intrastate* radioactive shipments, an aspect of the radiological health and safety field not currently subject to federal control.¹¹⁸ This presents a question of complementary regulation under the Atomic Energy Act. Applying the technique developed earlier, an examination of an "agreement" state's authority in this area will be used to determine the limits on the authority of a "nonagreement" state.

States which have executed an agreement with the AEC can and do regulate intrastate radioactive shipments, but subject to the requirement that their programs be compatible with the federal program.¹¹⁹ As a practical matter, this means that "agreement" states apply DOT's interstate standards of intrastate transportation.¹²⁰ A "nonagreement" state wishing to regulate intrastate shipments of radioactive material should follow the same procedure.¹²¹

114. RADIOACTIVE MATERIALS TRANSPORTATION, *supra* note 104, at 31. See generally Adams, *supra* note 99, at 197-198; 1 CCH ATOM. EN. L. REP. par. 4005 (1971). The following DOT regulations apply to transportation of radioactive materials: 49 C.F.R. Parts 170-189 (1975) (rail and highway—ICC); 14 C.F.R. Part 103 (1975) (air transport—FAA); 46 C.F.R. Part 146 (1975) (water transport—Coast Guard).

115. Postal regulations are contained in 39 C.F.R. Parts 123-125 (1974).

116. See note 58 *supra* and accompanying text for an explanation of the terms "concurrent" and "complementary."

117. One state was permitted to regulate interstate carriers by penalizing them for failure to obtain an ICC permit. *California v. Zook*, 336 U.S. 725 (1949). By analogy, states might be permitted to enforce the federal regulations concerning radioactive shipments in interstate commerce.

118. Currently, most shipments are in interstate commerce. RADIOACTIVE MATERIALS TRANSPORTATION, *supra* note 104, at 3. Furthermore, DOT has jurisdiction over intrastate shipments transported by licensed interstate carriers. *Id.* at 31.

119. RADIOACTIVE MATERIALS TRANSPORTATION, *supra* note 104, at 36.

120. *Id.*

121. 1 F. GRAD, TREATISE ON ENVIRONMENTAL LAW § 6.03, at 50 (1973). As further support for this position, consider the case of Illinois, a "nonagreement" state, which regulates the disposal of "low-level" radioactive wastes under the uniform federal

Of course, any state can govern these shipments for purposes distinct from radiological health and safety regulation.¹²² This would include the enforcement of all transportation safety regulations, traffic laws and other enactments generally applicable to interstate and intra-state transportation subject to its jurisdiction.¹²³

The Regulation of Radioactive Waste Disposal

"Radioactive waste materials . . . may be in the form of source material, by-product materials, or special nuclear material, or a combination of these."¹²⁴ By virtue of the sections of the Atomic Energy Act specifically dealing with the licensing requirements for these materials¹²⁵ and the general powers conferred by section 161,¹²⁶ the AEC has broad authority over their disposal.

Pursuant to these sections the AEC has adopted regulations governing waste disposal. Subject to limited exceptions, they provide that the proposed disposal procedures for "licensed material"¹²⁷ require the specific approval of the AEC.¹²⁸ Furthermore, "high-level" wastes¹²⁹ must be transferred to a federal repository for perpetual care

regulations it has adopted. See note 144 *infra* and accompanying text. It has been suggested that a state may go further in regulating transportation than to merely adopt the federal controls because it is predominantly a "local concern." Adams, *supra* note 99, at 198. Another argument supporting this view is that the transportation takes place on state owned highways and to permit federal supersedure in such a case would amount to a taking of state property without compensation to promote a federally desired use. Estep & Adelman, *supra* note 5, at 54. A simple answer to this is that the federal government could condition receipt of interstate highway funds by a state on the reasonableness of its regulations governing transportation of radioactive material. At the very least these regulations would have to be compatible with the federal atomic energy program. See note 76 *supra* and accompanying text. To meet this compatibility requirement most states would simply prefer to adopt the applicable federal regulations.

122. See notes 48-56 *supra* and accompanying text.

123. But regulations that discriminate against radioactive shipments and unreasonably hinder development of the nuclear industry within the state may be found invalid. See note 57 *supra* and accompanying text.

124. 1 CCH ATOM. EN. L. REP. ¶ 4011 (1972). For definitions of these terms see notes 15 & 18 *supra*.

125. Atomic Energy Act of 1954 §§ 62, 57(a), 42 U.S.C. §§ 2092, 2077(a) (1970); *id.* § 81, 42 U.S.C. § 2111 (Supp. IV, 1974).

126. *Id.* § 161, 42 U.S.C. § 2201 (1970), *as amended*, (Supp. IV, 1974).

127. "Licensed material" is simply source, by-product, and special nuclear material for which the AEC regulations require a license. See 10 C.F.R. §§ 40.3, 30.3, 70.3 (1975). Exceptions include common carriers (see note 108 *supra* and accompanying text) and persons licensed by an "agreement" state, subject to some important limitations, however (see note 141 *infra* and accompanying text).

128. 10 C.F.R. § 20.301 (1975).

129. A layman's definition of "high-level" wastes is those which, by virtue of their radioactivity, half-life, and biological significance, require perpetual isolation from the

at which time the AEC takes title to them.¹³⁰ *Disposal of high-level wastes is not permitted except on land owned and controlled by the federal government.*¹³¹ Generally, "low-level" radioactive wastes¹³² must be disposed of on land owned by the federal government or by a state government.¹³³ The low-level waste disposal sites are operated by private commercial enterprises.¹³⁴

What confronts the states in attempting to regulate this subject is not only the broad statutory powers vested in the AEC by the Atomic Energy Act, but also an extraordinarily complete exercise of that authority by the AEC.¹³⁵ Thus, no real question of complementary regulation under the Atomic Energy Act is presented, since the AEC is regulating this entire aspect of the field.¹³⁶ Turning now to the question of concurrent regulation, the section 274 agreement will again be used to prescribe the permissible extent of control by a "nonagreement" state.

Subsection (c)(4) of section 274 provides that authority for disposal of "hazardous" source, by-product and special nuclear materials shall be retained by the AEC at its discretion.¹³⁷ The corresponding regulations do not permit an "agreement" state to assume the responsibility for regulating the disposal of high-level wastes.¹³⁸ Thus,

biosphere. 1 SOUTHERN INTERSTATE NUCLEAR BOARD, RADIOACTIVE WASTE MANAGEMENT 22 (1974) [hereinafter cited as RADIOACTIVE WASTE MANAGEMENT]. For the technical definition see 10 C.F.R. Part 50, App. F(2) (1975).

130. 10 C.F.R. Part 50, App. F(2) (1975).

131. 10 C.F.R. Part 50, App. F(3) (1975).

132. A layman's definition of "low-level" wastes is those which have a radioactive content sufficiently low to permit discharge to the environment with reasonable dilution or after relatively simple processing. RADIOACTIVE WASTE MANAGEMENT, *supra* note 129, at 21. There are also "intermediate level" wastes which are treated to produce low-level and high-level wastes and disposed of accordingly. *Id.*

133. 10 C.F.R. § 20.302(b) (1975). There are limited exceptions for disposal by release into sanitary sewage systems (10 C.F.R. § 20.303 (1975)) and for burial in soil (10 C.F.R. § 20.304 (1975)).

134. See RADIOACTIVE WASTE MANAGEMENT, *supra* note 129, at 37. There are currently three such companies operating six land burial facilities (located in Kentucky, South Carolina, New York, Illinois, Washington and Nevada). Five of these are on land owned by the state and the sixth is on federally owned property which is leased to the state. *Id.* at 37-38.

135. Unless the wastes are disposed of by release into the sanitary sewer system or by burial by the licensee, both of which must comply with rigid guidelines for permissible concentration levels (see 10 C.F.R. §§ 20.303, 20.304 (1975)), the AEC must specifically approve the proposed procedures for disposal of "licensed material." 10 C.F.R. § 20.302 (1975). See note 127 *supra* for the definition of this term.

136. See note 58 *supra* and accompanying text for an explanation of the terms "complementary" and "concurrent."

137. Atomic Energy Act of 1954 § 274(c)(4), 42 U.S.C. § 2021(c)(4) (1970).

138. 10 C.F.R. §§ 150.15(a)(4), (5) (1975). See also notes 129-131 *supra* and accompanying text.

a "nonagreement" state would not be justified in governing here either.¹³⁹

The disposal of source, by-product and special nuclear materials not licensed by the AEC is controlled by the "agreement" state.¹⁴⁰ Subject to certain exceptions (including the disposal of high-level wastes), section 274 and the related regulations permit an "agreement" state to assume the AEC's authority with regard to these materials, thereby dispensing with the federal licensing requirement.¹⁴¹

Therefore, it is clear that an "agreement" state may regulate the disposal of low-level wastes, provided that its regulatory program is compatible with the federal program.¹⁴² This suggests that a "non-agreement" state would be permitted to regulate low-level waste disposal upon adopting the uniform AEC regulations applicable to this function.¹⁴³ This conclusion is strengthened by the fact that one of the six existing low-level waste burial sites is located in a "nonagreement" state¹⁴⁴ and, although the operator of that site receives his license from the AEC, he conducts the burial operations under the provisions of a permit by the state.¹⁴⁵

The final inquiry in this area concerns the extent of legitimate state control over matters outside the field occupied by the Atomic Energy Act (viz., matters not concerning the regulation of radiological hazards). Because high-level wastes are delivered to a federal reservation for ultimate disposal the state has no authority, absent consent from the federal government, to regulate any aspect of the operation, including matters *not* related to radiological health and safety.¹⁴⁶ But as to low-level waste disposal sites there can be little doubt of a state's right to control. Assuming that, since a state dedicated its own land

139. See note 71 *supra* and accompanying text.

140. RADIOACTIVE WASTE MANAGEMENT, *supra* note 129, at 39; Swan, *Management of High-Level Radioactive Wastes: The AEC and the Legal Process*, LAW & SOC. ORDER 263, 287 (1973).

141. Atomic Energy Act of 1954 § 274(b), 42 U.S.C. § 2021(b) (1970); 10 C.F.R. § 150.10 (1975).

142. Atomic Energy Act of 1954 § 274(d)(2), 42 U.S.C. § 2021(d)(2) (1970).

143. See note 71 *supra* and accompanying text.

144. Illinois.

145. RADIOACTIVE WASTE MANAGEMENT, *supra* note 129, at 41. Additionally, the fact that the state owns the land may be used to justify regulation in the absence of an agreement with the AEC. See Estep & Adelman, *supra* note 5, at 54.

146. U.S. CONST. art. I, § 8, cl. 17; *Pacific Coast Dairy v. Department of Agriculture*, 318 U.S. 285 (1943) (state law is effective of its own force on federal enclaves only when the sale of that land to the United States is conditioned upon the state's retention of jurisdiction).

for this purpose, it would not attempt to impose unreasonable restrictions on the waste disposal operations,¹⁴⁷ the state would have complete control over everything beyond radiological health and safety regulation. This is especially true considering that these activities would be taking place on state owned property.¹⁴⁸

CONCLUSION

The Atomic Energy Act preempts the field of regulation for radiological health and safety concerning source materials, by-product materials, special nuclear materials and nuclear production and utilization facilities. States may regulate all matters not contained within the preempted field, provided that they do not unreasonably interfere with the development of the nuclear industry.

In 1959 Congress amended the Act to allow states to execute an agreement with the Atomic Energy Commission whereby they assume full responsibility for certain aspects of radiological health and safety regulation. The legislative history of the 1959 amendment reveals a congressional intent that state regulation should not be permitted to conflict with the federal goals of promoting nuclear energy and protecting the public against radiation hazards. Because of this the amendment requires that state regulations in "agreement" states be compatible with the federal program.

It is believed that a "nonagreement" state can also regulate to the extent that it would be allowed if it entered into an agreement with the AEC, provided that its controls are compatible with the federal regulations and are competently enforced. Based on this premise guidelines were prescribed for permissible state legislation governing radiation hazards in the areas of plant siting, transportation of radioactive materials and radioactive waste disposal. Allowable state regulation for other than radiological health and safety reasons in these three areas was also examined.

In the area of facilities' location, the state should adopt legislation having general application to nuclear and nonnuclear plants. Attempts to set special standards for nuclear facilities will risk successful challenge under the preemption doctrine. The state should not attempt to regulate radiation hazards in this area.

147. See note 57 *supra* and accompanying text.

148. Estep & Adelman, *supra* note 5, at 54.

Regulation of radiation hazards concerning radioactive materials' transportation in intrastate commerce (and perhaps even in interstate commerce) can be accomplished by adopting the Department of Transportation's regulations governing radioactive shipments. States may regulate transportation of these materials for other than radiological health and safety reasons, provided that they do not unreasonably restrict this flow of commerce.

States may regulate low-level radioactive waste disposal by adopting the AEC's rules governing this conduct. High-level waste disposal is exclusively the concern of the federal government and may not be regulated in any manner by a state.

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