LEGISLATIVE CONTROL OVER THE URANIUM INDUSTRY IN VERMONT: FLIRTING WITH PREEMPTION

INTRODUCTION

The domestic uranium industry originated with the federal government's program to develop atomic weapons in the 1940's.[1] The Atomic Energy Commission (AEC) initially guaranteed fixed prices for uranium ores, established ore-buying stations, and provided numerous other benefits for uranium producers.[2] The federal government thus assumed the responsibility for nurturing the uranium industry with economic incentives. From the beginning, however, the federal government has shared with the states the responsibility for regulating the industry for the protection of public health and safety.[3] Unfortunately, the parameters of the respective state and federal spheres of regulatory authority governing the uranium industry are unclear.[4] The resulting confusion over which government, state or federal, has regulatory authority over the various aspects of the uranium industry raises potential problems for states seeking to protect their citizens from the hazards associated with the industry.[5] This note focuses on Vermont's attempt to supervise the uranium industry and the issues that the state's particular regulatory approach raises.

During the 1980 legislative session, Vermont adopted a statutory scheme governing the development of minable uranium deposits within the state. Entitled "An Act Relating to Fissionable Material Development"[6] (hereinafter referred to as Act 123), this legislation requires the General Assembly's approval of any proposal to extract or process uranium ore.[7] That approval must take the form of legislation stating that the specific proposal "pro-

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1. U.S. NUCLEAR REGULATORY COMMISSION, 1 DRAFT: GENERIC ENVIRONMENTAL IMPACT STATEMENT ON URANIUM MILLING 2-1 (NUREG-0511, April 1979) [hereinafter cited as GEIS].

2. *Id.*

3. *See, e.g.*, Grammer, *The Uranium Mill Tailings Radiation Control Act of 1978 and NRC's Agreement State Program*, 13 NAT. RESOURCES LAW. 469, 475 (1981).

4. *Id.* at 477-78.

5. *See infra* text accompanying notes 18-47.

6. 1979 Vt. Acts No. 123 (Adj. Sess.) (codified at scattered sections of VT. STAT. ANN. tit. 10, §§ 6001-6092 (Supp. 1982)).

7. VT. STAT. ANN. tit. 10, § 6083(c) (Supp. 1982).

mote[s] the general welfare."[8] Public concern over the environmental impact of uranium mining and milling in Vermont, ignited by the exploratory activity of several mining interests, hastened the passage of Act 123.[9] The Act's provisions, however, ignore the intricate interaction of state and federal laws dealing with uranium resources.

When federal and state legislation regulate the same subject, it is often difficult to ascertain which law predominates. The legacy of judicial solutions to this problem is embodied in a set of rules of construction which collectively form the doctrine of federal preemption. What follows is an analysis of Act 123 and its vulnerability to a constitutional challenge based upon federal preemption.

I. Background and History

The existence of substantial uranium deposits in Vermont has been suspected since the 1950's.[10] Uranium mining activity in this country, however, traditionally has been centered around the high-grade ore found in the Western states.[11] An economic incentive to expand exploration for minable uranium deposits to areas previously overlooked, like Vermont, did not surface until the mid-1970's. During the early 1970's, the price of uranium oxide, the concentrated ore from which nuclear fuel rods are ultimately fashioned,[12] was approximately $7 per pound; it skyrocketed to over $40 per pound by the end of the decade.[13]

Aerial radiation surveys were used to map radioactive anomalies within Vermont in 1978,[14] thereby pinpointing areas where uranium ore worth mining might be found. On the basis of this

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8. *Id.* Vermont has a statute similar to Act 123 which requires that before a nuclear power plant may be constructed, the Legislature must determine that the project is in the public interest. Vt. Stat. Ann. tit. 30, § 248 (1970 & Supp. 1982). For a discussion of the vulnerability of this law to a challenge based on federal preemption, see Murphy & LaPierre, *Nuclear "Moratorium" Legislation in the States and the Supremacy Clause: A Case of Express Preemption*, 76 Colum. L. Rev. 392, 431-32 (1976).

9. N.Y. Times, Apr. 15, 1980, at A20, col. 3.

10. *Hearing on H. 327 [Act 123]: House Natural Resources Comm.*, Bien. Sess., Mar. 13, 1979, at 11 [hereinafter cited as *Hearing*].

11. *See, e.g.*, Friedman, *Environmental Problems Relating to Uranium Mining and Milling*, 11 Nat. Resources Law. 277, 303 (1978).

12. Grammer, *supra* note 3, at 470.

13. N.Y. Times, Mar. 20, 1980, at D8, col. 6.

14. D. Aicher, Report on the Environmental and Mine Leasing Laws Applicable to Mining (With Special Attention to Uranium Mining) 1 (1979) (unpublished student research, Vermont Law School); *see also* N.Y. Times, Mar. 6, 1980, at A16, col. 1.

information, at least six companies leased or purchased mineral rights from private land owners,[15] enabling the companies to exploit any uranium found on the surface owner's property.[16] One firm conducted field sampling on land it leased near Jamaica, Vermont.[17] The uproar that ensued upon the public's discovery of this exploratory activity, however, caused the suspension of any further attempts to reconnoiter Vermont's uranium resources.[18]

A. *Uranium Mining and Milling and Related Hazards*

Public opposition to uranium exploration in Vermont is a manifestation of widespread anxiety over the environmental and health hazards associated with uranium mining and milling.[19] There are basically three methods of mining uranium ore — strip mining, *in situ* leaching, and underground mining; each method entails the prospect of environmental damage. Further risks are associated with uranium milling, the process whereby raw uranium ore is converted into "yellowcake," a packaged uranium product which is then further refined and enriched for use in the defense and nuclear power industries.[20]

Strip mining, also referred to as open pit mining or surface mining, is the cheapest method of extracting uranium ore and is employed when the ore body is situated less than 500 feet from the surface.[21] Problems associated with strip mining include soil erosion, dispersion of radioactive dust, water pollution, disruption of flora and fauna, and destruction of the land's scenic qualities.[22]

In situ leaching is a relatively new method for extracting uranium ore; it is used only with a horizontal ore body that is underlain by impermeable material.[23] A leaching solution is pumped into the ore body and dissolves it.[24] A central recovery well pumps

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15. *Hearing, supra* note 10, at 11-12.

16. For background on mineral leases and accompanying rights, see Dycus, The Correlative Rights of Surface and Mineral Owners in Vermont (1980) (1 Publication Series, Environmental Law Center, Vermont Law School).

17. N.Y. Times, *supra* note 14.

18. *See* N.Y. Times, *supra* note 9, at col. 4.

19. N.Y. Times, *supra* note 14, at cols. 1, 2.

20. Grammer, *supra* note 3, at 470.

21. 2 GEIS, *supra* note 1, at B-1.

22. C. Chapman, M. Herbert, G. Lawrence & M. Watts, The Environmental Aspects of Uranium Mining in Vermont 7 (1979) (unpublished) [hereinafter cited as Chapman].

23. 2 GEIS, *supra* note 1, at B-2.

24. *Id.*

the resulting solution out of the ground.[25] Severe groundwater contamination by uncontrolled leachate solution that migrates beyond the ore body is the greatest risk associated with this method.[26]

Underground mining is utilized where vein-type ore bodies, relatively narrow accumulations that can spread in any direction over long distances, are found.[27] An underground mine is begun by driving openings into the ore body and constructing ventilation and haulage systems.[28] The ore is blasted or drilled loose from the cavern walls; it is then transported to the surface and stockpiled prior to transportation to a milling site.[29] Large amounts of groundwater accumulate in the mine shafts and must be pumped to the surface for disposal.[30] Additional environmental problems include dispersion of radioactive dust, groundwater depletion,[31] and the continuous venting of radioactive gases into the atmosphere from mine shafts.[32]

Conventional uranium milling is accomplished by using an acid or alkaline solvent to leach the uranium out of the ore.[33] The resulting solution is fed to a solvent extraction system,[34] while the remaining solids, called the tailings, are contained in a slurry that is pumped into a tailings pond for permanent disposal.[35] For each ton of uranium ore milled, over 1900 pounds of tailings are produced,[36] and the tailings still contain eighty-five to ninety percent

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25. Chapman, *supra* note 22, at 8. The migration of leachate solution is controlled by the pressure differential between the injection and recovery wells. *Id.* Monitor wells surrounding the ore body are supposed to detect any escaping leachate solution and dictate a correction in the pressure differential. Root, *Environmental Law Aspects of Extracting and Processing Uranium*, 11 NAT. RESOURCES LAW. 409, 443-44 (1978). After the uranium is extracted, the solution is reinjected into the ground. Friedman, *supra* note 11, at 289.

26. Root, *supra* note 25, at 444.

27. Interview with Dr. Charles A. Ratté, Vermont State Geologist, in Montpelier, Vt. (Jan. 15, 1982) [hereinafter cited as Ratté]. It is likely that any minable uranium existing in Vermont will be found to have accumulated in vein-type ore bodies, necessitating extraction by underground mining. However, more extensive assessment of the state's uranium resources is needed before indulging in further speculation as to probable mining techniques. *Id.*

28. Root, *supra* note 25, at 439; *see also* 2 GEIS, *supra* note 1, at B-1.

29. 2 GEIS, *supra* note 1, at B-1.

30. *Id.*

31. Chapman, *supra* note 22, at 13-14.

32. *See* U.S. NUCLEAR REGULATORY COMMISSION, AN INVESTIGATION OF RADON-222 EMISSIONS FROM UNDERGROUND MINES 3 (NUREG/CR-1273, Feb. 1980).

33. 2 GEIS, *supra* note 1, at B-5 through B-9.

34. *Id.* at B-6 through B-9.

35. *Id.* at B-11.

36. Grammer, *supra* note 3, at 470.

of the natural radiation originally contained in the raw uranium ore.[37] Uranium and its radiological byproducts, radium and thorium, permeate the tailings,[38] as do numerous other potentially toxic, but nonradiological substances.[39] The leaching process also gives the tailings a highly acidic or alkaline nature.[40]

Tailings ponds are lined with an impermeable material, such as clay.[41] After the water in the ponds has evaporated, the sandy tailings are covered in order to prevent wind dispersal of the radioactive material.[42] An average mill will eventually utilize about 250 acres for permanent tailings management.[43]

As the above description of uranium mining and milling processes indicates, the concern that sets development of uranium resources apart from other mining and milling practices is the threat of local contamination by air- and water-borne radioactivity. The radionuclides of uranium, thorium, and radium and their radioactive byproducts continue to exist in the waste byproducts of uranium mining and milling for thousands of years.[44] Tailings piles, even when properly covered and stabilized, continue to emit radioactive radon-222 gas and gamma rays as the radionuclide particles in the tailings decay.[45] The radiation emitted by these waste byproducts is referred to as "technologically enhanced natural radiation" (TENR) to distinguish it from the background radiation that is part of the natural environment.[46]

Potential health hazards associated with human exposure to TENR are increased incidence of genetic mutations and cancer.[47]

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37. D.M. Scott, Uranium Exploration, Mining and Milling, Occupational and Public Health Considerations 4 (Mar. 5, 1979) (Executive Summary, VERMONT DEPT' OF HEALTH, Div. of Occupational Health, Radiological Health Program) [hereinafter cited as Scott].

38. *Id.*

39. Grammer, *supra* note 3, at 471-72; *see also* 1 GEIS, *supra* note 1, at 5-6.

40. Grammer, *supra* note 3, at 472.

41. *See* 2 GEIS, *supra* note 1, at B-14.

42. *See id.* at B-14 through B-15.

43. 1 GEIS, *supra* note 1, at 6-5.

44. 2 GEIS, *supra* note 1, at C-2 through C-4. Varying levels of contamination by the radioactive byproducts of uranium production has occurred in Western states, both through the insidious dispersal of radioactive material by wind, rain, and groundwater movement and through dramatic incidents like the bursting of dikes used to hold back slurry in tailings ponds. Scott, *supra* note 37, at 7-8. *See also*, Grammer, *supra* note 3, at 478 (discussing management of radioactive tailings).

45. Scott, *supra* note 37, at 7.

46. *Id.* at 4.

47. *Id.; see also* 2 GEIS, *supra* note 1, at G-58 through G-63.

Despite an obvious need for stringent environmental and health regulations to insulate the public from the radiation associated with uranium mining, it is in precisely the area of protection from these radiation hazards that the division of regulatory authority between the states and the federal government is unclear.

B. *Passage of Act 123*

Preservation of the environment is given high priority in Vermont, a primarily rural state dependent upon both the health of its agricultural industry and its scenic ability to attract tourists. This concern is evidenced by Act 250,[48] the statutory scheme which regulates development in Vermont through a land use permit system. Before construction of any commercial, industrial or housing project over a specified minimum size can commence, a development plan must be submitted to the district environmental commission.[49] The development plan is reviewed for compatibility with land use planning objectives,[50] environmental consequences,[51] effect on local government services[52] and aesthetic impact.[53] Hearings on the proposed development may be held.[54] If the development plan is approved by the commission, a land use permit is issued.[55] Any uranium mining or milling project would be subject to both these Act 250 requirements and a network of regulations promulgated pursuant to Vermont's air and water pollution laws.[56]

The public, however, does not consider Act 250's safeguards stringent enough to properly supervise the uranium industry. Confronted with the possibility of uranium mining and milling operations within their borders, Vermont's citizens responded quickly and unequivocally. During their 1980 March town meetings, thirty-three communities voted to adopt local ordinances prohibiting the

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48. VT. STAT. ANN. tit. 10, §§ 6001-6092 (1973 & Supp. 1982).
49. *Id.* § 6083(a)(2).
50. *Id.* § 6086(a)(9), (10).
51. *Id.* § 6086(a)(1)-(4).
52. *Id.* § 6086(a)(5)-(7).
53. *Id.* § 6086(a)(8).
54. *Id.* § 6085.
55. *Id.* § 6087(a). For detailed information about Act 250, see generally Heeter, *Almost Getting It Together in Vermont*, in D.R. MANDELKER, ENVIRONMENTAL AND LAND CONTROLS LEGISLATION 323 (1976). *See also* Note, *The Effect of Act 250 on Prime Farmland and in Vermont*, 6 VT. L. REV. 2 (1981).
56. *See* VT. STAT. ANN. tit. 10, §§ 551-572 (1973 & Supp. 1982) (air pollution control); *id.* §§ 1251-1384 (water pollution control).

mining and milling of uranium.[57] A Stratton-based group, "Stop Uranium Mining Now," presented the Legislature with a petition signed by 7,000 people favoring the passage of Act 123, which was then under consideration.[58]

While the proposed local ordinances represent an attempt to ursurp the state's police power to regulate health hazards and nuisances affecting the state as a whole,[59] they also demonstrated sufficient public concern to spur the adoption of Act 123 in April 1980. An amendment to Act 250, Act 123 requires, in part, that:

> Where an application concerns the extraction or processing of fissionable source material, before the application is considered the district commission shall obtain the express approval of the general assembly by act of legislation stating that extraction or processing of fissionable source material will promote the general welfare. The district commission shall advise the general assembly of any application for extraction or processing of fissionable source material . . . and shall make available all relevant material. The procedural requirements and deadlines applicable to permit applications under this chapter shall be suspended until the approval is granted. Approval by the general assembly under this subsection shall not be construed as approval of any particular application or proposal for development.[60]

Testimony at a hearing held prior to passage of Act 123 indicates that protecting the public from the radiation hazards associated with uranium mining and milling was a major legislative objective.[61]

In addition, Act 123 broadens Act 250's definition of a development by requiring a land use permit to include any "exploration for fissionable source materials beyond the reconnaissance phase"[62] and any extraction or processing of fissionable source material.[63] The "reconnaissance phase" is limited to methods of exploration that do not involve the use of chemicals, excavation or drilling

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57. Memorandum from C.H. Van Gorder, Senior Planner, Windham Regional Planning & Development Comm'n to Boards of Selectmen, Planning Comm'ns, & Interested Persons (June 27, 1980).

58. N.Y. Times, *supra* note 9.

59. *See* 81-80 Op. Att'y Gen. (Vt. 1980) (finds ordinances invalid due to overbreadth).

60. VT. STAT. ANN. tit. 10, § 6083(c) (Supp. 1982).

61. *Hearing, supra* note 10, at 18-22; *see also* N.Y. Times, *supra* note 9, at col. 3.

62. VT. STAT. ANN. tit. 10, § 6001(3) (Supp. 1982).

63. *Id.*

equipment, or explosives and do not involve road building or land clearing.[64]

Passage of Act 123 brought an immediate halt to exploration for minable ore deposits in Vermont. The companies involved apparently did not find it worthwhile to obtain Act 250 permits for uranium exploration activities. Since no uranium mining interests had conducted sufficient exploration to consider setting up mining or milling operations, no attempts were made to undertake the legislative approval process mandated by Act 123.

Mining interests may have been willing to accept the Act as a virtual ban on uranium exploration because of a sudden decline in the uranium oxide market. The nuclear industry had fallen short of its anticipated growth rate, and the accident at Three Mile Island in the spring of 1979 brought the construction of new nuclear power plants to a standstill.[65] The supply of uranium oxide outstripped the demand, and the price fell from $43 per pound in 1979 to $32 per pound in mid-1980.[66] It is impossible to tell how or when the domestic uranium oxide market may recover; variable factors such as world supply, world demand, and health of the domestic nuclear industry must be considered.

An increased demand for uranium oxide, with the resultant price rise, would cause potential uranium deposits to look commercially attractive again. Given a favorable uranium market, uranium mining and milling concerns may find it worthwhile to challenge the legality of Act 123 if the General Assembly, faced with a mining or milling permit application, fails to find uranium development in the public interest. The inquiry as to whether Vermont can use its police power to mandate legislative approval of uranium development proposals centers on Act 123's vulnerability to a charge that it is preempted by existing federal law.

II. Federal Preemption and Act 123

The Atomic Energy Act of 1954[67] gives a federal agency, the Nuclear Regulatory Commission (NRC),[68] broad authority to regu-

64. *Id.* § 6001(21)(B), (D).

65. N.Y. Times, June 12, 1980, at D11, col. 1.

66. *Id.*

67. 42 U.S.C. §§ 2011-2296 (1976 & Supp. III 1979).

68. The NRC was created in 1974 to take over the regulatory duties of the AEC. *See supra* text at notes 1-4. The latter agency was abolished due to findings that the AEC was

late the development, production, and consumption of nuclear energy.[69] Included in this mandate is the authority to protect the public from radiation hazards associated with the nuclear industry.[70] An understanding of the sources of this regulatory power and the ways in which congressional legislation can preempt state legislation is vital to any consideration of how specific provisions of the Atomic Energy Act may affect Vermont's ability to regulate development of its uranium resources.

A. *Preemptive Capability of the Atomic Energy Act*

The doctrine of federal preemption is rooted in the supremacy clause, which states that federal laws enacted pursuant to the Constitution "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 . . . notwithstanding."[71] At the same time, however, the tenth amendment provides that "[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively."[72] The preemption doctrine provides the framework for establishing the regulatory boundaries of state and federal legislation. In a specific conflict, the doctrine is invoked to resolve the tension between state and federal authority.

Any preemption analysis is predicated on the "preemptive capability"[73] of the federal legislation in question. Preemptive capability, in turn, is conditioned upon the requirement that the legislation be enacted pursuant to one of the enumerated congressional powers among those listed in article I, section 8 of the Constitution. This requirement flows from the doctrine of enumerated powers first articulated in *McCulloch v. Maryland*.[74] Under this doctrine, Congress can "exercise only the powers granted to it"[75] in the Constitution. When Congress exercises an enumerated power to achieve an end specifically delineated by the enumerated power,

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unable concurrently to regulate and promote the development of the nuclear industry in a responsible manner. 42 U.S.C. §§ 5814, 5841-5849 (1976 & Supp. III 1979).

69. 42 U.S.C. § 2012 (1976).

70. *Id.* §§ 2012, 2021 (c).

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

72. U.S. CONST. amend. X.

73. For a thorough analysis of the sources of preemptive capability, see Engdahl, *Preemptive Capability of Federal Power*, 45 U. COLO. L. REV. 51 (1973-74).

74. 17 U.S. (4 Wheat.) 316, 405 (1819).

75. *Id.*

such as the regulation of interstate commerce,[76] or the collection of taxes,[77] it is "supreme within its sphere of action,"[78] and has preemptive capability with regard to state legislation.[79]

In addition, the necessary and proper clause[80] enables Congress to regulate matters otherwise extraneous to the enumerated powers in order to effectuate one of the ends specifically delineated by the enumerated powers.[81] Federal legislation enacted for this purpose also has preemptive capability with regard to state legislation.[82] While Congress can also use an enumerated power to effectuate a goal extraneous to any of the enumerated powers,[83] such federal legislation does not carry the force of preemptive capability.[84]

Whether an exercise of federal power has preemptive capability thus depends primarily upon the purpose that Congress sought to achieve by enacting the legislation in question. The judiciary, however, is the ultimate arbiter of any dispute over whether an exercise of federal power is within the scope of an enumerated power, since the issue is one of constitutional construction.[85] The preemptive capability of the Atomic Energy Act of 1954 is thus assessed through statements of both congressional intent and past

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76. U.S. CONST. art. I, § 8, cl. 3.

77. U.S. CONST. art. I, § 8, cl. 1.

78. McCulloch v. Maryland, 17 U.S. (4 Wheat.) at 405.

79. Engdahl, *supra* note 73, at 57-58.

80. U.S. CONST. art. I, § 8, cl. 18.

81. In finding that Congress can incorporate a bank, an action outside the explicit scope of the enumerated powers, the Court in *McCulloch v. Maryland* laid down a broad interpretation of Congress's powers under the necessary and proper clause: "Let the end be legitimate, let it be within the scope of the constitution, and all means which are appropriate, which are plainly adapted to that end, which are not prohibited, but consist with the letter and spirit of the constitution, are constitutional." 17 U.S. (4 Wheat.) at 421.

82. Nash v. Florida Indus. Comm'n, 389 U.S. 235 (1967) (National Labor Relations Act prohibited discrimination against employees filing unfair labor practice charges. Florida law that rendered filing complainant ineligible for unemployment compensation held preempted because the federal Act was found to be enacted for purposes of regulating activities affecting interstate commerce.); Campbell v. Hussey, 368 U.S. 297 (1961) (Uniform federal standards for grading tobacco were enacted for purpose of relieving interstate commerce of burden of uneven standards; Georgia law imposing additional classification held preempted.).

83. United States v. Darby, 312 U.S. 100, 115 (1941); *see also* L. TRIBE, AMERICAN CONSTITUTIONAL LAW §§ 5-3 (1978).

84. Regents v. Carroll, 338 U.S. 586 (1950) (Compliance with an FCC order to repudiate contract with third party before FCC license will be renewed does not grant licensee immunity from action in state court for amount due under contract. While the commerce clause power can be used to pursue the objective of financially sound radio stations, the FCC cannot use that power to supercede state law by determining the validity of state contracts.).

85. Marbury v. Madison, 5 U.S. (1 Cranch) 137, 177-78 (1803).

judicial findings.

Congress explicitly stated in the Atomic Energy Act that the end sought by the development and regulation of the nuclear industry was to enable atomic energy to make a "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."[86] Congressional findings incorporated into the Act declare that the development and regulation of the nuclear industry are "vital to the common defense and security"[87] and "[t]he processing and utilization of . . . nuclear material affect interstate and foreign commerce and must be regulated in the national interest."[88] In addition, a Senate report issued at the time of the Act's passage states that "[t]he legal basis of the proposed legislation is the constitutional powers of the United States including, among others, to provide for the common defense . . . and to regulate commerce with foreign nations and among the several States."[89]

The "paramount objective" of the Atomic Energy Act is thus stated to be the promotion of national security, an enumerated power.[90] In addition, Congress invoked several of its other enumerated powers as authority for the promulgation of the Act. Therefore, the provisions of the Act dealing with the regulation of the production of uranium, and the radiation hazards accomanying it, come within Congress's ability to regulate matters when necessary and proper to effectuate enumerated powers. It follows that these provisions of the Atomic Energy Act also have preemptive capability with regard to state legislation such as Vermont's Act 123.

The preemptive capability of the Atomic Energy Act with reference to the regulation of radiation hazards was affirmed in *Northern States Power Co. v. Minnesota*,[91] which concerned a state's right to regulate radioactive discharge from nuclear power plants. In finding preemption of state regulation, the Eighth Circuit Court of Appeals, in a decision subsequently affirmed by the Supreme Court,[92] stated that Congress enacted the Atomic Energy

86. 42 U.S.C. § 2011(a) (1976).

87. *Id.* § 2012(a).

88. *Id.* § 2012(c).

89. S. REP. No. 1699, 83rd Cong., 2d Sess., *reprinted in* 1954 U.S. CODE CONG. & AD. NEWS 3456, 3465.

90. U.S. CONST. art. I, § 8.

91. 447 F.2d 1143 (8th Cir. 1971).

92. *Aff'd mem.*, Minnesota v. Northern States Power Co., 405 U.S. 1035 (1972).

Act pursuant to its "constitutionally granted powers over common defense and security, interstate and foreign commerce and promotion of the general welfare."[93]

B. *Atomic Energy Act and Preemption of Act 123*

With the preemptive capability of the Atomic Energy Act established, it must be determined whether Vermont's Act 123 is actually preempted. The first task in a preemption inquiry is to look for an explicit declaration of congressional intent to preempt.[94] There is always a presumption against federal preemption;[95] and intent to preempt can be inferred only where preemption is found to be the "clear and manifest purpose of Congress."[96] If, however, the statutory scheme contains an explicit statement of intent to preempt state law, the state statute in question can be held void without further inquiry into congressional purpose.[97]

Absent a statement of explicit congressional intent, a court will determine whether to infer an implicit intent to preempt state law by scrutinizing the language, purpose, legislative history, and application of the federal scheme.[98] A court may infer an intent to preempt where it finds any of the following criteria satisfied:

> 1) there is a conflict inherent in the application of both state and federal law, either because "compliance with both . . . is a physicial impossibility"[99] or because adherence to state law "may produce a result inconsistent with the objective of the federal statute;"[100]
> 2) the field being regulated by the federal scheme is one of dominant federal interest; state regulation is thereby precluded as a hindrance to effective uniform regulation of that interest.[101]
> 3) the scheme of federal regulations established by Congress is so pervasive that there is no room for states to supplement it with their own regulatory plans.[102]

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93. 447 F.2d at 1147.
94. Pacific Legal Found. v. State Energy Resources Conservation & Dev. Comm'n, 659 F.2d 903, 919 (9th Cir. 1981).
95. Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142 (1963).
96. Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947).
97. Minnesota v. Northern States Power Co., 447 F.2d at 1146.
98. Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 147-48 (1963).
99. *Id.* at 142-43.
100. Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947).
101. *Id.*
102. *Id.*

The Atomic Energy Act gives the NRC a broad mandate to promulgate a pervasive regulatory scheme governing "source, byproduct, and special nuclear material."[103] "Source material," as defined by the Atomic Energy Act, includes ore containing uranium "in such concentration as the Commission may by regulation determine from time to time."[104] The definition of "byproduct material" includes "the tailings or wastes produced by the extraction or concentration of uranium . . . from any ore processed primarily for its source material content,"[105] and thus includes uranium mill tailings. "Special nuclear material" refers to enriched source material.[106] The authorization for the creation of a pervasive regulatory scheme governing these materials must be examined as part of a determination of whether the Atomic Energy Act explicitly or implicitly preempts Vermont's attempt to control uranium mining and milling through Act 123.

C. *Uranium Mining*

Subchapter VI of the Atomic Energy Act[107] pertains to the regulation of source material:

> [U]nless authorized by a general or specific license issued by the Commission . . . no person may transfer or receive in interstate commerce, transfer, deliver, receive possession of or title to or import into or export from the United States any source material after removal from its place of deposit in nature, except that licenses shall not be required for quantities of source material which, in the opinion of the Commission, are unimportant.[108]

Thus, a license cannot be required until after source material, the uranium ore, has been removed from the ground by mining. Furthermore, the NRC has promulgated a definition of "unimportant quantities of source material" which provides that:

> [A]ny person is exempt from the regulations in this part . . . and from the requirements for a license to the extent that such person receives, possesses, uses, transfers, or imports into the United States unrefined and unprocessed ore containing source material; provided that, except as authorized in

103. 42 U.S.C. § 2012(d) (1976).
104. *Id.* § 2014(z).
105. *Id.* § 2014(e) (Supp. III 1979).
106. *Id.* § 2014(aa) (1976).
107. *Id.* §§ 2091-2099 (1976 & Supp. III 1979).
108. *Id.* § 2092 (1976).

> a specific license, such person shall not refine or process such ore.[109]

While the Atomic Energy Act gives the NRC the authority to require reports on the handling of source material once it is removed from its "place of deposit in nature,"[110] it appears that the NRC has no regulatory jurisdiction over the actual mining of uranium ore or exploration for uranium. In addition, the NRC has chosen, pursuant to its congressionally mandated authority,[111] to exclude the transportation and handling of unrefined uranium ore from its licensing requirements, specifically its requirements concerning radiation hazards.[112]

The Atomic Energy Act therefore does not create a preemptive barrier to Act 123's requirements regarding uranium exploration and mining projects. Although the Atomic Energy Act has preemptive capability with respect to state regulation of uranium mining and milling,[113] Congress has exercised this capability neither explicitly nor implicitly in the case of uranium exploration or mining.

D. *Uranium Milling*

In contrast to uranium mining, uranium milling is highly regulated by the NRC. Under subchapter VII of the Atomic Energy Act,[114] which covers byproduct material, a license is required to mill uranium ore: issuance of a license is conditioned upon adherence to safety, health, and environmental protection standards.[115] The extent to which Congress meant to exercise its preemptive capability regarding state regulation of uranium milling is found in those provisions of the Atomic Energy Act which grant to the NRC the capacity to relinquish some of its regulatory authority to the states.

A 1959 amendment to the Atomic Energy Act, section 274,[116] allows a state to enter into a cooperative agreement with the NRC to regulate source material, byproduct material, and refined

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109. 10 C.F.R. § 40.13(b) (1981).
110. 42 U.S.C. § 2092 (1976).
111. *See supra* note 108 and accompanying text.
112. *See supra* note 109 and accompanying text.
113. *See supra* text at notes 86-93.
114. 42 U.S.C. §§ 2111-2114 (1976 & Supp. III 1979).
115. *Id.*
116. *Id.* § 2021.

fissionable material in quantities insufficient to form a critical mass.[117] This option was made available in order to "promote an orderly regulatory pattern between the Commission and State governments with respect to nuclear development and use and regulation of byproduct, source, and special nuclear material"[118] and to "establish procedures and criteria for discontinuance of certain of the Commission's regulatory responsibilities."[119] Under a cooperative agreement "it is recognized that the State shall have authority to regulate the materials covered by the agreement for the protection of the public health and safety from radiation hazards."[120]

The NRC must find that a state's program to control radiation hazards is "compatible with the Commission's program . . . [a]nd is adequate to protect the public health and safety with respect to the materials covered by the proposed agreement."[121] In addition to being "compatible" with NRC regulatory standards, the state program must also be submitted to the NRC for periodic review[122] and can be terminated if the NRC finds that the public is being inadequately protected.[123] Section 274 repeatedly refers to the continuance and discontinuance of the NRC's authority, and appears to be an expression of federal predominance in the field of radiation hazards except to the extent that cooperative agreements are worked out with the states. The NRC still retains exclusive authority under section 274(c) to regulate many aspects of the nuclear industry, most significantly all aspects of the construction and operation of nuclear power plants.[124]

Aside from this express retention of regulatory authority under section 274(c), NRC regulatory predominance over other aspects of the nuclear industry, including uranium milling, seems to be limited to the field of radiation hazards. Section 274(k) 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."[125] A congressional report prepared in 1959 states that, while the

117. *Id.* § 2021(b).
118. *Id.* § 2021(a)(3) (1976).
119. *Id.* § 2021(a)(4).
120. *Id.* § 2021(b) (1976 & Supp. III 1979).
121. *Id.* § 2021(d)(2).
122. *Id.* § 2021(i) (1976).
123. *Id.* § 2021(j).
124. *Id.* § 2021(c)(1).
125. *Id.* § 2021(k).

"Commission has exclusive authority to regulate for protection against radiation hazards until such time as the State enters into an agreement . . . ,"[126] "[t]his subsection [274(k)] is intended to make it clear that the bill does not impair the State authority to regulate activities of AEC [now NRC] licensees for the manifold health, safety, and economic purposes other than radiation protection."[127]

Moreover, the records of congressional hearings held prior to the enactment of section 274(k),[128] indicate a deliberate intention to be ambiguous on the subject of concurrent state and federal regulations that touch upon the use of source, byproduct, and special nuclear material. A sentence deleted during drafting read: "It is the intention of this Act that the State laws and regulations concerning the control of radiation hazards from byproduct, source, and special nuclear materials shall not be applicable except pursuant to an agreement entered into with the Commission . . . . "[129]

A letter from A. R. Luedecke, General Manager of the AEC during the course of these congressional deliberations, to the chairman of the Joint Committee on Atomic Energy stated the considerations behind deletion of this explicit declaration of an intention to preempt state regulation:

> In suggesting the elimination of the sentence, we did not intend to leave any room for the exercise of concurrent jurisdiction by the States to control radiation hazards from those materials . . . . Our sole purpose was to leave room for the courts to determine the applicability of particular State laws and regulations dealing with matters on the fringe of the preempted area in the light of all the provisions and purposes of the Atomic Energy Act, rather than in light of a single sentence.
>
> For example, in the absence of the sentence, 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

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126. S. REP. No. 870, 86th Cong., 1st Sess., *reprinted* in 1959 U.S. CODE CONG. & AD. NEWS 2872, 2883.

127. *Id.*, *reprinted in* 1959 U.S. CODE CONG. & AD. NEWS at 2882.

128. *Federal-State Relationships in the Atomic Energy Field: Hearings Before the Joint Committee on Atomic Energy*, 86th Cong., 1st Sess. (1959).

129. *Id.* at 500.

special nuclear materials.[130]

This excerpt affirms the NRC's exclusive jurisdiction over regulation of radiation hazards, but at the same time the letter deliberately rejects an express statement of the NRC's preemptive regulatory supremacy in that area. The intention was to insure that the states have room to regulate, to some extent, source, byproduct, and special nuclear material for purposes other than radiation control, regardless of the existence of a cooperative agreement. This implicit "room to regulate" is important to any consideration of Act 123 because Vermont has failed to enter into a cooperative agreement with the NRC.[131]

Moreover, the scope of the regulatory leeway that non-Agreement States have to regulate uranium milling for purposes other than radiation control is clouded by the provisions of the Uranium Mill Tailings Radiation Control Act of 1978 [hereinafter referred to as Mill Tailings Act].[132] Title II of the Mill Tailings Act amends the Atomic Energy Act by extending the NRC's regulatory authority over nonradiological environmental and health hazards associated with uranium milling[133] in the interest of providing uniform national standards for regulating these hazards.[134] The NRC is charged with promulgating minimum standards for the regulation of both the radiological and nonradiological aspects of uranium milling.[135] State regulations pursuant to an agreement concerning uranium milling must now meet or exceed federal standards, rather than simply be compatible with them.[136]

The Mill Tailings Act makes no provisions for regulation by non-Agreement States, but it does reserve to the states all authority previously granted to them under the Atomic Energy Act.[137] Presumably, any state authority over nonradiological aspects of

130. *Id.*

131. More than half of the states have entered into cooperative agreements, including Vermont's neighbors, New York and New Hampshire. U.S. NUCLEAR REGULATORY COMMISSION 1979 ANNUAL REPORT 173 (1980). Vermont could obtain authorized control over the radiation hazards associated with the uranium industry by becoming an Agreement State. However, the process of entering into an agreement with the NRC is prohibitively expensive. Ratté, *supra* note 27.

132. Pub. L. No. 95-604, 92 Stat. 3021-3043 (1978) (codified at 42 U.S.C. §§ 7901-7942, and scattered sections at *id.* §§ 2011-2296 (Supp. III 1979)).

133. 42 U.S.C. scattered sections at §§ 2011-2296 (Supp. III 1979).

134. *Id.* § 7901.

135. *Id.* § 2114.

136. *Id.* § 2021(o)(2); *compare id.* § 2021(d)(2) (1976).

137. *Id.* § 2021 note (Supp. III 1979).

uranium milling that flows from section 274(k) of the Atomic Energy Act remains intact.[138] It does not appear, therefore, that the NRC has gained exclusive jurisdiction, under the Mill Tailings Act, over the nonradiological hazards associated with uranium milling in the absence of a cooperative agreement. Rather, when there is no agreement, exclusive preemptive regulatory jurisdiction still seems to be limited to the field of radiation hazards. In order to survive a preemption challange, therefore, regulation of the nonradiological aspects of uranium milling by a non-Agreement State should not conflict with the minimum standards set by the NRC pursuant to the Mill Tailings Act.[139] Since the Mill Tailings Act authorizes regulation that is more stringent than NRC standards dictate, regulation of uranium milling by a non-Agreement State that does not conflict with, and meets or is more stringent than NRC minimum standards can arguably survive a preemption challange.

In summation, the permissible scope of state regulation of uranium milling is ultimately left for court determination, and the court has no explicit statement of preemptive intent to guide it. Therefore, when a claim is made that a state law regulating source, byproduct, or special nuclear material is preempted because it infringes upon the NRC's authority to control radiation hazards, the court must begin its inquiry by determining the purpose of the state law. If the purpose of the state law is to control radiation hazards absent a cooperative agreement, it is preempted. If the court finds that the state law was enacted for purposes other than radiation control, it will proceed to consider whether the state law impermissibly conflicts with the Atomic Energy Act and the Mill Tailings Act, is a hindrance to uniform regulation of a dominant federal interest, or interferes with a pervasive scheme of regulation, such as that promulgated pursuant to the Mill Tailings Act.[140]

The Vermont Legislature did not explicitly exclude control of radiation hazards from Act 123's regulatory purposes. Presumably, the Legislature would have radiation hazards in mind when considering approval of a permit application.[141] Testimony prior to the passage of the Act indicates that the radiation-related health

138. *See supra* text at notes 125-31.
139. *See supra* text at notes 99-100.
140. *See supra* text at notes 98-102.
141. *See supra* note 60 and accompanying text.

hazards associated with the mining and milling of uranium were a major legislative consideration.[142] Since Vermont is not an Agreement State, such a legislative intent conflicts with the NRC's regulatory authority and is sufficient for a finding of federal preemption. The cases discussed below indicate how a court might respond to a preemption challenge involving Act 123 and suggest possible modifications in the Act which could make it less vulnerable.

E. Northern States *and* Pacific Legal Foundation

Northern States Power Co. v. Minnesota,[143] an Eighth Circuit Court of Appeals decision subsequently affirmed by the Supreme Court,[144] was the first major case concerning concurrent state and NRC regulation of radiation hazards.[145] Minnesota attempted to impose regulations concerning the discharge of radioactive waste from a nuclear plant that were more stringent than the AEC's regulations.[146] Minnesota, a non-Agreement State, argued that regulation of releases of radioactive waste into the environment was within its traditional powers under the tenth amendment to protect its citizens' welfare.[147] The court did not agree; it found that the AEC retained exclusive authority to regulate the radiation hazards associated with nuclear plants under section 274(c), and could not turn over this authority even pursuant to a cooperative agreement.[148] The court also construed an implicit intent to preempt state law from the Atomic Energy Act's statement of purpose, the Act's legislative history, and the pervasiveness of the regulatory scheme through which the AEC controlled the development of nuclear power plants.[149]

Minnesota obviously sought to regulate in an area, the control of radiation hazards, that the AEC retained as its exclusive domain. *Northern States* has since been followed by a number of cases in which state and local attempts to control the radiation hazards associated with nuclear power plants were preempted.[150]

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142. *Hearing, supra* note 10, at 18-22.
143. 447 F.2d 1143 (8th Cir. 1971).
144. *Aff'd mem.*, Minnesota v. Northern States Power Co., 405 U.S. 1035 (1972).
145. *See supra* text at notes 91-93.
146. 447 F.2d at 1145.
147. *Id.* at 1148-49.
148. *Id.* at 1145.
149. *Id.* at 1150-52.
150. *See, e.g.*, United States v. City of New York, 463 F. Supp. 604, 608-12 (S.D.N.Y.

The court in *Northern States* did mention, however, that the state retained the authority to regulate for purposes other than protection against radiation hazards.[151] Presumably, the court was referring to regulations based on zoning, economic, environmental, or health concerns that are divorced from radiation control. There was, of course, no need in *Northern States* to discern whether the state's legislative purpose was other than radiation control and whether its regulations merely resulted in an incidental effect on the use of source, byproduct, or special nuclear material unrelated to radiation hazards.

Recently, in *Pacific Legal Foundation v. State Energy Resources Conservation and Development Comm'n*,[152] the Ninth Circuit Court of Appeals did have to determine whether state regulation of the nuclear industry for reasons other than control of radiation hazards was preempted by the Atomic Energy Act. California refused to allow the certification of any new nuclear plants until the federal government approved technology for disposal of high-level nuclear waste material.[153] The state cited the large costs associated with the management of these wastes and the impracticality of nuclear power without permanent waste management techniques. California asserted that the regulation was enacted for economic reasons, rather than radiation control, and was therefore exempt under section 274(k).[154] The court accepted this reasoning and refused to find federal preemption.[155] *Pacific Legal Foundation* indicates the fine line that can be drawn between regulation for purposes of radiation control and regulation for other purposes.

1978) (invalidating a local ordinance which had required owners of nuclear reactors operated within New York City to obtain a certificate of health and safety from the City Board of Health); Marshall v. Consumers Power Co., 65 Mich. App. 237, 247-53, 237 N.W.2d 266, 275-77 (1975); State Dep't of Envtl. Protection v. Jersey Cent. Power & Light Co., 69 N.J. 102, 351 A.2d 337, 342-43 (1976).

151. 447 F.2d at 1149-50.

152. 659 F.2d 903 (9th Cir. 1981).

153. *Id.* at 908. For a detailed discussion of the controversy at issue in this case, see Tribe, *California Declines the Nuclear Gamble: Is Such a State Choice Preempted?* 7 ECOLOGY L.Q. 670 (1979).

154. 659 F.2d at 924. *See supra* text at notes 125-31.

155. 659 F.2d at 925. The Supreme Court granted certiorari to consider two issues in this case: whether the challenges to California's statute are ripe for judicial review and whether its provisions are preempted by the Atomic Energy Act of 1954. Pacific Gas & Elec. Co. v. State Energy Resources Conservation & Dev. Comm'n, 51 U.S.L.W. 3041 (Aug. 3, 1982) (No. 81-1945). Arguments were heard on January 17, 1983. 51 U.S.L.W. 3579 (Feb. 15, 1983). The Court's decision should have a significant impact upon the status of state regulation of the nuclear industry.

The court of appeals went on to find that California's law did not "impermissibly interfere with a federal goal of promoting nuclear power,"[156] stating that:

> Viewing the Atomic Energy Act of 1954 as a whole, we find that Congress struck a balance between state and federal power to regulate. Inherent in the states' regulatory authority is the power to keep nuclear plants from being built, if the plants are inconsistent with the states' power need, or environmental or other interests. Encompassed in the state's power to enforce zoning laws is the power to deny land use to a nuclear plant.[157]

The court refused to find an implicit congressional intent to preempt concurrent state regulation of nuclear power plants when that regulation is not intentionally extended to radiation control. *Pacific Legal Foundation* thereby provides encouragement for states seeking some control over the development of the nuclear industry within their borders. Act 123, however, is vulnerable to a preemption challenge even following *Pacific Legal Foundation* because the Act does not specify any criteria by which the Vermont Legislature is to be guided in evaluating a uranium milling project.

Conclusion and Recommendations

Since Act 123 does not specify any criteria by which the General Assembly is to determine whether uranium mining and milling is in the public interest, a presumption that control of radiation hazards would be a legislative consideration undoubtedly exists.[158] Authority to regulate the radiation hazards associated with the nuclear industry is granted to the NRC by the Atomic Energy Act, absent a cooperative agreement under section 274. Therefore, any state action regarding uranium mining and milling would face close judicial scrutiny if a federal preemption challenge is initiated. Act 123's regulation of uranium exploration and mining would survive such scrutiny even though it includes control of radiation hazards, since the NRC is not authorized to regulate uranium mining[159] and such regulation is left to state and local authorities. Any regulation of uranium milling, however, could not deliberately control radiation hazards and be assured survival of a preemption challenge,

156. *Id.* at 926.
157. *Id.*
158. *See supra* notes 60-61 and accompanying text.
159. *See supra* notes 107-10 and accompanying text.

since the NRC regulates uranium milling radiation hazards through a pervasive federal scheme. In addition, regulation of uranium milling should be in line with the regulations concerning the nonradiological aspects of uranium milling promulgated by the NRC pursuant to the Mill Tailings Act.[160]

Although the effect of passage of Act 123 has been to suspend exploration for minable deposits of uranium ore in Vermont, this effect may be temporary and, with a recovery in the uranium market, the Act may be subject to a challenge based on federal preemption. Act 123 is vulnerable to such a challenge and should be amended to exclude any consideration of control of radiation hazards from its regulation of the mining and milling of uranium. This could be accomplished by revising the statute to include a statement of purpose linking its controls to valid economic, aesthetic, or administrative concerns over the development of uranium mining and milling. These controls should meet or exceed those promulgated under the Mill Tailings Act.[161]

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160. *See supra* notes 137-39 and accompanying text.
161. *Id.*