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I. INTRODUCTION

The present existence of immense quantities of low-level nuclear waste,\(^1\) a federal law providing for state or regional control of such waste disposal,\(^2\) and a number of state disposal laws challenged on a variety of constitutional grounds\(^3\) underscore what currently may be the most serious problem in nuclear waste disposal: who is to regulate the disposal of low-level nuclear wastes. This problem's origin may be traced to crucial omissions in the Atomic Energy Act of 1946\(^4\) and its 1954 amendments (AEA)\(^5\) that concern radioactive waste disposal.\(^6\) Although the AEA states that nuclear materials and facilities are affected with the public interest and should be regulated to provide for the public health and safety,\(^7\) the statute fails to prescribe specific guidelines for any nuclear waste disposal. Indeed, more than thirty years after passage of the AEA, the Senate Committee on Energy and

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\(^1\) Low-level waste includes industrial sludges, resins, liquids, contaminated protective clothing, tools and instruments from nuclear power plants, factories, hospitals, and universities. 42 U.S.C. § 2021(b) (1982).


\(^3\) California denies certification of new reactors until the federal government finds and approves a demonstrated technology or means of high-level nuclear waste disposal (Warren-Alquist State Energy Resources Conservation and Development Act, CAL. PUB. RES. CODE §§2500-2598 (West 1977 & Supp. 1981)); Illinois prohibits transportation into or storage within Illinois of spent fuel rods used in any power generating facility located outside the state (Spent Fuel Act, ILL. REV. STAT. ch. 111.5 para. 230.21-42 (Supp. 1981)); Montana prohibits the disposal of radioactive material in Montana no matter where generated (MONT. CODE ANN., § 75-3-103(1) (1981)); New Hampshire prohibits the storage or disposal of radioactive waste within New Hampshire or its coastal jurisdiction (Act of June 23, 1979, ch. 350, 1979 N.H. LAWS 400); Washington sought to prohibit transportation into and storage within Washington of non-medical radioactive waste generated outside of Washington (1981 WASH. LEGIS. SERV. Chapter 1, §§3, 4 (West)).


\(^6\) Radioactive wastes include low-level waste (see supra note 1) and high level wastes, i.e., those generated in the reprocessing of nuclear fuel and others so classified by the Nuclear Regulatory Commission. See 42 U.S.C. § 10101(12) (1982); 10 C.F.R. § 61.2 (1984).

\(^7\) 42 U.S.C. § 2012(d).
Natural Resources reported that “during this time the establishment by the Federal Government of a definitive policy for the long-term storage or disposal of these wastes has not been granted high priority. Meanwhile the quantities of civilian nuclear wastes have continued to grow.”

The Senate committee also reported that there were seventy private nuclear power plants in 1980 with an additional ninety scheduled to begin production by 1990. At the same time, there were only three operating low-level nuclear waste disposal sites in the country, located at: Richland, Washington; Beatty, Nevada; and Barnwell, South Carolina. Fearing that these sites would become the country’s permanent repositories, the governors of these states implored Congress for relief. Congress finally addressed the problem by passing the Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA).

The LLRWPA grants states some control over radioactive waste disposal, an area from which they were previously excluded by the doctrine of federal preemption. States may form regional compacts, under transfer agreements with the Nuclear Regulatory Commission (NRC), that take over the siting and construction of waste disposal facilities within the compact region. The LLRWPA’s authorization of regional compacts introduces a third layer of authority into what was at first a relatively clear issue of federal preemption versus the states’ traditional rights.

Almost simultaneously with Congress’ passage of the LLRWPA, many states began passing their own laws regulating the disposal and transportation of wastes within their borders. Some state laws even prohibit further construction of nuclear power plants. Predictably, the nuclear industry has fought these laws in the courts.

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9 Id.
12 Id.
14 See infra text accompanying notes 188-192.
15 See supra note 3.
17 See, e.g., Pacific Gas and Elec. Co. v. State Energy Resources Conservation & Dev. Comm’n, 461 U.S. 190, 205 (1983) (plaintiffs sought a declaratory judgment that California’s law denying certification to new reactors was preempted by federal nuclear energy development
This Comment will discuss the question of who regulates low-level radioactive waste disposal facilities by examining the following: the constitutional doctrines safeguarding federal government authority; areas of state authority; grants of specific authority delegations under the AEA and subsequent acts dealing with nuclear energy, especially the LLRWPA and its amendment; and finally, potential problems that may arise depending on whether ultimate regulatory authority is deemed to rest with single states, regional compacts, or the federal government.

II. CONSTITUTIONAL GRANTS OF CONGRESSIONAL AUTHORITY

A. Supremacy Clause

The supremacy clause of the Constitution establishes federal law as the supreme law of the land. The clause has been interpreted to mean that to the extent that state laws conflict with federal laws, they are preempted. State laws can be expressly preempted by acts of Congress or impliedly preempted by federal statutory schemes that demonstrate Congress' intent to occupy a particular field. Express preemption is the most direct form of preemption and it generates little debate: enforcement of inconsistent state laws is prohibited in an area that Congress has chosen to regulate. In the absence of express preemption, courts must determine whether Congress has impliedly preempted regulation of a field. To do so, they generally look for one of two sets of circumstances. One set of cir-
circumstances occurs when the federal regulatory scheme is so pervasive that it appears that Congress did not intend for states to regulate in this area.\textsuperscript{23} This is the occupation of the field principle. When a court determines that Congress has occupied the field, there is no room for state regulation.\textsuperscript{24} In making this determination, courts look only at the congressional act itself.\textsuperscript{25} The other set of circumstances leads to the conflict principle: a state law must fall if it produces a result inconsistent with a federal law\textsuperscript{26} or "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."\textsuperscript{27} In determining that a state law must give way under the conflict principle, courts look at the effect of the particular state law on the federal regulatory scheme.

B. Commerce Clause

Congress has ultimate authority to regulate interstate commerce,\textsuperscript{28} which has been traditionally defined as anything that is in the flow of traffic between or among states.\textsuperscript{29} State laws regulating the flow of interstate commerce have been upheld if they serve a legitimate state interest and are applied even-handedly.\textsuperscript{30} However, whenever a state law obstructing the flow of interstate commerce is challenged, the court will balance the state's putative need to regulate against the federal government's need for uniformity.\textsuperscript{31}

\textsuperscript{23} Id.
\textsuperscript{24} Id.
\textsuperscript{25} Id.
\textsuperscript{26} See, e.g., Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142-43 (1963) ("federal exclusion of state law is inescapable . . . where compliance with both federal and state regulations is a physical impossibility.").
\textsuperscript{27} Hines v. Davidowitz, 312 U.S. 52, 67 (1941).
\textsuperscript{28} U.S. Const., art. VI, cl. 2 (see supra note 18 for text of clause). See also Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824).
\textsuperscript{29} Gibbons, 22 U.S. (9 Wheat.) at 76.
\textsuperscript{30} Raymond Motor Transp., Inc. v. Rice, 434 U.S. 429, 440 (1978) ("it never has been doubted that much state legislation, designed to serve legitimate state interests and applied without discrimination against interstate commerce, does not violate the commerce clause even though it affects commerce").
\textsuperscript{31} The balancing standard usually used is the three-prong test of Pike v. Bruce Church, Inc., 397 U.S. 137 (1970) (evenhanded regulation, fulfillment of a legitimate local public purpose, incidental effect on interstate commerce) or the two-tiered test of City of Phila. v. New Jersey, 437 U.S. 617 (1978) (whether the state action is a protectionist measure discriminating against out-of-state commerce and whether the state's reason for such treatment of foreign commerce is justified).
III. STATE AUTHORITY

A. Traditional Police Power Areas of State Regulation

Pursuant to their so-called police powers, the states have traditionally enacted legislation to protect the health, safety, and welfare of their citizens. For example, states have generally been allowed to regulate railroads and highways within the state, and public utility franchises "may be granted or withheld at the pleasure of the State." The Supreme Court has recently designated environmental protection as a legitimate local purpose "similar to the States' interests in protecting the health and safety of their citizens."

B. New Areas of State Regulation Stemming From States' Police Powers

State regulation of nuclear power plants was recently upheld in Pacific Gas & Electric Company v. State Energy Resources Conservation & Development Commission as a valid extension of a state's power to regulate other utilities, even though earlier case law stated the opposite view. For example, in the 1971 case of Northern States Power Company v. Minnesota, the United States Court of Appeals for the Eighth Circuit decided that while the AEA "does not use the terms 'exclusive' or 'sole' in describing existing regulatory responsibilities of the [Nuclear Regulatory] Commission," the tone of the statute and its legislative history evidenced Congress' implied pre-emption of state regulation of nuclear plants.

In Northern States, Northern States Power Company (Northern), a Minnesota corporation, applied to the Minnesota Pollution Control Agency for a waste disposal permit for a plant being built under Atomic Energy Commission (AEC) guidelines. Northern received its...
permit in May 1969, but found that the permit required the company to meet substantially more stringent conditions regulating the level of radioactive discharges than those imposed by the AEC. Northern filed suit in August 1969, arguing that the AEC’s authority preempted Minnesota’s authority to regulate radioactive discharges from nuclear power plants. In agreeing with Northern, the court noted that the objectives of Congress “encourage the development, use and control of atomic energy so as to make the maximum contribution to the general welfare and to increase the standard of living.”40 The court concluded that any state regulation of nuclear power would create an obstacle to achieving these congressional objectives.41

In light of the Northern States holding, some states’ subsequent attempts to regulate nuclear power plants were deemed an intrusion into the federal sphere.42 However, the states did not give up. In 1976 the California legislature tried a new approach, passing the California Nuclear Laws.43 Although the federal government is responsible for ensuring the safety of nuclear power, the states historically exercise authority over generating and selling electricity.44 The California laws avoid intruding into the federal sphere because they respond to economic concerns such as “the risk that the insufficiency of interim storage space for spent fuel will lead to reactor shutdowns, rendering nuclear energy an unpredictable and uneconomical adventure.”45 California’s nuclear laws deny certification of new reactors in California until the federal government, pursuant to its authority to resolve the nuclear waste problem, finds that there exists and approves “a demonstrated technology or means for the disposal of high-level nuclear waste.”46

In separate cases filed in different districts, the Pacific Legal Foundation47 and Pacific Gas and Electric Company (PG&E)48 challenged...
California's nuclear laws. PG&E sought a declaratory judgment that the laws were preempted by federal regulation of nuclear energy development. Pacific Legal Foundation filed a similar challenge. In both cases, the district courts held that those aspects of the California laws that attempted to regulate nuclear power plants were preempted.49

In a consolidated appeal,50 the United States Court of Appeals for the Ninth Circuit reversed and remanded Pacific Legal Foundation on grounds that the plaintiff lacked standing.51 The plaintiff utility company in the Pacific Gas and Electric part of the case claimed that Northern States was controlling,52 but the Ninth Circuit rejected this contention, finding that California's laws were based on economic factors, a traditional area of state police powers.53 The court held that California's laws did not obstruct the congressional purpose of promoting atomic energy use since the AEA did not espouse development of atomic energy "at all costs."54 The court upheld California's reading of the AEA, one that allows a state to exercise its "inherent" regulatory authority to consider its own economic and environmental objectives in deciding to accept or reject nuclear power at all.55

On appeal, the Supreme Court agreed with the Ninth Circuit that California's laws were based on economic rather than safety motives and therefore within the state's sphere of authority.56 The Court held that there was no direct conflict between federal and state law and that California's laws did not frustrate congressional goals.57 The message of Pacific Gas and Electric is that states may regulate certain aspects of nuclear power so long as the regulations address traditional state police powers and not the statutorily preempted area of nuclear safety.

51 Id. at 913-14.
52 Id. at 923.
53 Id. at 923-25.
54 Id. at 926.
55 Id.
57 Id. at 216, 219.
C. Congressional Grants of State Authority

In addition to exercising their inherent police powers, states may regulate areas specifically addressed in congressional grants of authority. The following such grants indicate that Congress intends states to have some regulatory power over nuclear and radioactive materials.

1. Federal Water Pollution Control Act of 1977. The FWPCA\textsuperscript{58} enables state governments, under Environmental Protection Agency (EPA) guidelines, to regulate the discharge of water pollutants, including some radioactive pollutants.\textsuperscript{60} Under the FWPCA it is unlawful to discharge pollutants into the nation’s navigable waters without a permit showing that the pollutants do not exceed certain effluent limitations.\textsuperscript{66} The permits are issued by the Administrator of the EPA or by a state if the state has developed a program in compliance with the FWPCA.\textsuperscript{61} The statute also allows states to promulgate guidelines even stricter than those of the EPA.\textsuperscript{62} However, the FWPCA leaves intact the Nuclear Regulatory Commission’s (NRC) authority over the discharge of source, by-product, and special nuclear materials.\textsuperscript{63}

If source, by-product, and special nuclear materials can be considered “pollutants” under the FWPCA’s definition,\textsuperscript{64} they come under

\begin{itemize}
\item \textsuperscript{59} 33 U.S.C. § 1362(6) (1982).
\item \textsuperscript{60} Id. § 1311(b).
\item \textsuperscript{61} Id. §§ 1311(a), 1342.
\item \textsuperscript{62} Id. §§ 1251(b), 1370.
\item \textsuperscript{63} The Atomic Energy Act of 1954 defines source material as: “(1) uranium, thorium, or any other material which is determined by the Commission pursuant to the provisions of section 2091 of this title to be source material; or (2) ores containing one or more of the foregoing materials, in such concentrations as the Commission may by regulation determine from time to time.” 42 U.S.C. § 2014(2) (1982).
\item By-product material is defined as: “(1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material.” Id. § 2014(e) (1982).
\item Special nuclear material is defined as: “(1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 2071 of this title, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.” Id. § 2014(aa).
\item \textsuperscript{64} “The term ‘pollutant’ is defined by the FWPCA to include, inter alia, ‘radioactive materials.’ But when the Administrator of the EPA adopted regulations governing the permit program, . . . he specifically excluded source, by-product, and special nuclear materials—those
EPA, and, therefore, state control. Whether this is the case was the issue in *Train v. Colorado Public Interest Research Group*. In *Train*, Colorado organizations and residents (the respondents) claimed potential harm from radioactive effluents discharged from two Colorado-based nuclear power plants. Although the power plants met AEC effluent standards, the respondents wanted the plants to be held to the higher EPA or state standards. Therefore, the respondents brought suit against the EPA seeking: (1) a declaration that “pollutants” under the FWPCA included even those radioactive materials regulated under the AEA, and (2) an injunction requiring the EPA to regulate the discharge of all radioactive materials. The Supreme Court held that Congress did not intend the FWPCA to affect the regulatory authority of the NRC as established under the AEA. As a result, source, by-product, and special nuclear materials continue to be regulated by the NRC. The Court also held, however, that the FWPCA authorizes the states to regulate radium and accelerator-produced isotopes. Therefore, although the respondents failed in their attempt to have all radioactive discharges brought under EPA control, the *Train* decision underscores that the FWPCA authorizes states to set standards for certain radioactive wastes.

2. Safe Drinking Water Act of 1974. The Safe Drinking Water Act establishes a joint EPA-state program of regulating contaminants, including radiological substances, in public water systems. The statute was passed to control contaminant levels in tap water and protect underground drinking water sources from contamination resulting from improper underground injection. Therefore, tap water from public water systems must meet national regulations lim-
iting contaminant levels and prescribing treatment techniques. Private, state, and federal underground injectors must obtain permits imposing conditions that safeguard underground drinking water sources. Under the 1974 Act, states had primary enforcement responsibility for public water systems if the states' drinking water regulations were no less stringent than national regulations and if the states had adopted adequate enforcement, record-keeping, and exemption procedures.

In 1986 Congress passed the Safe Drinking Water Act Amendments (Amendments). The Amendments set more rigorous standards for compliance, enforcement, and groundwater protection. The states continue to have primary enforcement responsibility, but the Amendments strengthen the EPA's ability to take enforcement action when states have failed to do so. Under both the Act and the Amendments, suspected violations are reported to the states, who in turn report them to the EPA. If the EPA "finds" a violation, it notifies the state and the violator. Under the Act, if the state has not begun enforcement action within thirty days of notification, the Administrator "may" commence such action. Under the Amendments, however, the Administrator "shall" commence an enforcement action. This language indicates that Congress wants the EPA to be able to initiate more enforcement actions. One effect of the change could be that states, to preserve their enforcement autonomy, will more aggressively carry out their delegated enforcement duties.

A new program established under the Amendments strengthens the states' regulatory role. The state Wellhead Protection Program authorizes states to determine whether they need a wellhead protection program and which wellhead areas should be protected from contamination. Significantly, federal agencies with jurisdiction over contaminant sources with potential to pollute a state's designated wellhead protection area are subject to the state's program.

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75 42 U.S.C. § 300f(1).
76 Id. See also H.R. REP. No. 1185, supra note 74.
77 42 U.S.C. § 300g-2(a)(1).
78 Id. § 300g-2(a)(2), (3), (4).
80 Id. §§ 300g-3(a).
81 Id. §§ 300g-3(a), (g).
82 Id. §§ 300g-3(a), 300h-2(a).
85 Id. § 300h-7(e).
requirements.  

3. Clean Air Act Amendments of 1977. The Northern States court asserted that Congress had impliedly preempted state regulation of nuclear power plants. However, the Clean Air Act (CAA) of 1970 provided that all federal facilities "shall comply with federal, state, interstate, and local requirements respecting control and abatement of air pollution to the same extent any person is subject to such requirements." The CAA espoused the principle that "[e]ach State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such state." Kentucky interpreted this language to mean that it could require federal installations on state land to secure operating permits as required by its federally approved clean air implementation plan. In the ensuing case of Hancock v. Train, the Court rejected this view. It held that because the CAA did not, with "satisfactory clarity," evince intent to subject federal installations to state permit requirements, such an interpretation could not be mandated by the Court.

Congress overruled Northern States and answered the Hancock decision by passing the Clean Air Act Amendments of 1977. These amendments grant states, not the federal government, regulatory authority over commercial nuclear facilities and materials. Once states' procedures are approved by the EPA, the states control the radioactive air pollutants of commercial nuclear facilities.

In summary, the Safe Drinking Water Act establishes joint EPA-state regulation, while the Federal Water Pollution Control Act and the Clean Air Act Amendments provide for state authority once the state scheme garners EPA approval. These acts show that Congress does not consider that only the federal government may regulate radiation hazards. These grants of authority establish, therefore, that

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*See supra note 38.*

*See supra note 93 and accompanying text.*
the states, subject to EPA guidelines, may regulate various radioactive wastes and air pollutants.

IV. REGIONAL COMPACTS

The LLRWPA authorizes the states to form regional compacts to develop disposal sites for low-level radioactive waste.\(^8\) Because these regional compacts are interstate compacts, they are governed by the compact clause\(^9\) of the Constitution. "[I]nterstate agreements presenting even potential encroachments on federal supremacy"\(^10\) are conditioned upon congressional approval under the compact clause. Individual states agree or contract\(^11\) to form compacts. Since it is a contract, a compact "may not be amended, modified, or otherwise altered without the consent of all parties."\(^12\) A state may not pass legislation that alters either its responsibilities within the compact or the compact's goals, nor may it withdraw unilaterally from a compact.\(^13\) Further, once a compact is approved by Congress, it becomes federal law. Various cases that construe compact law imply that once states enter into compacts, the states are subordinate to the compact.\(^14\)

It is unclear to what degree a compact can be modified after it is formed. If all signatories agree to the modification, it should be permissible.\(^15\) Individual states apparently must abide by the terms as initially set out if they cannot persuade all signatories to agree to the changes. Even Congress' ability to make modifications in a compact it has approved is unclear. In 1855 the Supreme Court held that Congress' commerce clause power took precedence over its compact clause power, suggesting that Congress could exercise its authority to regulate commerce regardless of existing compacts.\(^16\) Over a century

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\(^9\) "No State shall, without the Consent of Congress, . . . enter into any Agreement or Compact with another State." U.S. CONST., art. I, sec. 10, cl. 3.
\(^10\) "[T]he terms compact and contract are synonymous." Green v. Biddle, 21 U.S. (8 Wheat.) 1, 92 (1823).
\(^13\) Green, 21 U.S. (8 Wheat.) at 92-93.
\(^15\) Kansas City Area Transp. Auth., 640 F.2d at 174.
later, however, the Second Circuit refused to hold that Congress has “the implied constitutional power to alter, amend or repeal its consent to an interstate compact.”

V. REGULATORY AUTHORITY UNDER THE AEA AND SUBSEQUENT RADIOACTIVE WASTE POLICY ACTS

A. Atomic Energy Act

Congress passed the first Atomic Energy Act in 1946 (the 1946 Act), when atomic energy was popularly associated only with the atom bomb. The 1946 Act allowed private industry to conduct research and build commercial reactors under license from the AEC, the government’s regulatory arm, but it made “the manufacture and use of atomic materials a Government monopoly.” In 1954, when the Atomic Energy Act of 1954 (AEA) replaced the 1946 Act, the civilian role was broadened: the statute encouraged “widespread participation in the development and utilization of atomic energy for peaceful purposes to the maximum extent consistent with the common defense and security and with the health and safety of the public.” The AEA was amended again in 1959 to establish a regulatory role for the states: they may agree to be responsible for the disposal of nuclear waste. The balance between federal and state power in this area, however, is anything but clear. Since the AEA merely states purposes and does not codify the regulatory roles of states or of the federal government, it would appear that Congress intended the courts to determine the scope of federal preemption.

The federal government, through the Nuclear Regulatory Commis-
sion (NRC),\textsuperscript{118} licenses nuclear power plants and nuclear waste storage and disposal facilities\textsuperscript{119} and regulates potential radiation hazards.\textsuperscript{120} Generally, states may regulate nuclear activities of AEA licensed facilities within their borders in the areas of “health, safety, and economic purposes other than radiation protection.”\textsuperscript{121} Radiological safety, though, remains the federal government’s province through regulation of “the construction and operation of any production or utilization facility.”\textsuperscript{122} However, the states may sometimes regulate radiation protection by entering into agreements with the NRC that provide for state regulation of by-product materials, source materials, and, in certain circumstances, special nuclear materials, i.e., low-level nuclear wastes.\textsuperscript{123} In short, Congress regulates the safety hazards of high level nuclear energy, and the states, subject to NRC approval and regulation, may agree to be responsible for other aspects of nuclear power, including radiological safety hazards. Thus, a potential exists for dual regulation in the safety area, with resulting federal-state conflicts. Because of this, the courts will probably strictly review state legislation that concerns radiological safety. Interestingly, the Ninth Circuit in \textit{Pacific Gas and Electric} considered California’s nuclear laws to be constitutional not because they were passed under a valid grant of authority from the federal government,\textsuperscript{124} but because the court found an economic purpose for the legislation along with the safety purpose.\textsuperscript{125}

\section*{B. Radioactive Waste Policy Acts}

\subsection*{1. Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA).}

The LLRWPA expresses two Congressional policies: (1) states are responsible for disposing of low-level radioactive waste generated within their borders,\textsuperscript{126} and (2) states can most effectively and safely dispose of low-level nuclear waste on a regional basis.\textsuperscript{127}

In stating that “[e]ach State shall be responsible for providing, ei-

\textsuperscript{118} See supra note 13.
\textsuperscript{119} 42 U.S.C. § 2241.
\textsuperscript{120} Id. § 2021(c).
\textsuperscript{121} Id. § 2021(b) allows the states to regulate special nuclear materials if they are in quantities not sufficient to form a critical mass, i.e., to create a nuclear fission chain reaction. Otherwise, § 2021(c) establishes the NRC as the body with authority to license disposal activities.
\textsuperscript{122} Id. § 2021(c).
\textsuperscript{123} Id. § 2021(k).
\textsuperscript{124} Id. § 2021(d).
\textsuperscript{127} Id. § 2021d(a)(1).
The statute emphasizes the state as a distinct entity—"each State" is responsible "either by itself or in cooperation" with other states. However, the second policy of the LLRWPA is that the states should work together in nuclear waste disposal. These responsibilities belong to the states and may be best met by the states working together in regional compacts.

To encourage states to form regional compacts as quickly as possible, Congress established July 1, 1986, as the deadline by which a state either had to have joined a compact or passed legislation to deal with its own wastes. After Congress approved a compact, the regional disposal site would be allowed, beginning January 1, 1986, to refuse to accept waste produced outside the region.

2. The Low-Level Radioactive Waste Policy Act Amendment of 1985. Various problems and delays in implementing the LLRWPA led to compromise legislation aimed at keeping the existing low-level sites open while other regional facilities could be developed. Under the Low-Level Radioactive Waste Policy Act Amendment of 1985, compacts must submit plans for disposal facilities by January 1, 1988, and must submit license applications to the NRC by January 1, 1993. During this process, states that do not belong to compacts must limit the amounts of radioactive material they send to the existing sites. The out-of-region surcharge they must pay will double within the first six months of the 1988 deadline's one year grace pe-

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128 Id. § 2021c(a)(1) (Supp. Ill 1985).
129 Id.
130 Id. § 2021d(c).
131 Id.
133 Many states were reluctant to join in compacts, states claimed disposal facilities couldn't be ready before the 1990s. See Dineen, Low-Level Radioactive Waste Policy, ENVIRONMENT, Dec. 1985, at 35.
135 Id. § 2021e.
period and will quadruple during the second six months.  

VI. AUTHORITY UNDER THE LOW-LEVEL RADIOACTIVE WASTE POLICY ACT AND ITS AMENDMENT

A. Federal or State Authority?


In November 1980, Washington State voters enacted Initiative 383, which prohibited the “transportation and storage within Washington of radioactive waste produced outside the state” and provided for the formation of regional waste disposal compacts. Since 1964 the State of Washington has leased a 1,000 acre area of the Hanford Reservation in Washington from the federal government, subleasing a part of that land as a commercial low-level radioactive waste dump. This is the Richland site, one of only three operating radioactive waste repositories in the country. The site receives approximately forty percent of the nation’s low-level nuclear waste, approximately ninety-five percent of which originates outside of Washington. Washington monitors both the site and the shipments of waste sent to it.

Initiative 383 was attacked by the Richland site’s operator and seven other plaintiffs, who sought a declaration that it was unconstitutional. The United States filed a separate similar action. Both the site users and the government claimed that the initiative violated the commerce clause and that the AEA and the LLRWPA preempted state authority. The Federal District Court for the Eastern District of Washington granted the plaintiffs’ summary judgment motion, striking down Initiative 383 as unconstitutional. The State of Washington appealed. The United States Court of Appeals for the Ninth Circuit affirmed the district court’s decision. It found that Wash-

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138 Id. § 2021e(d)(1).
137 684 F.2d 627 (9th Cir. 1982).
139 Id. at 629.
140 Id.
141 Id.
142 Id.
144 Spellman, 684 F.2d at 632.
Washington's purpose in passing the initiative was to exercise its police power to protect the health and safety of its citizens\textsuperscript{146} and concluded that this is an illegal purpose under the AEA, which reserves safety regulation of nuclear power to the federal government.\textsuperscript{146}

The court also examined the LLRWPA provision that permits states to form regional compacts. It agreed that "[b]ecause Congress specifically gives permission for regional disposal in this Act," states signatory to a compact could exclude waste from non-signatory states without violating the supremacy or commerce clauses.\textsuperscript{147} However, the court concluded that since at the time of the initiative Washington had not formed an interstate compact, it could not legally exclude out-of-state wastes.\textsuperscript{148} The court apparently relied on the LLRWPA section dealing with regional compacts that states that restrictions on use of regional disposal sites by out-of-region producers shall not be effective until January 1, 1986, and until Congress has consented to the compact.\textsuperscript{149}

The Ninth Circuit also relied on a traditional commerce clause analysis to invalidate Washington's initiative. Citing the criteria of \\textit{Pike v. Bruce Church},\textsuperscript{160} the court held that the initiative failed all three parts of the \textit{Pike} test.\textsuperscript{151} The test considers that "[w]here the statute regulates even-handedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits."\textsuperscript{152} According to the Ninth Circuit, the Washington initiative failed the first part of the \textit{Pike} test, which requires that a state law regulate even-handedly, because the initiative banned only out-of-state waste.\textsuperscript{153} The initiative failed the second part of the test, that a state law accomplish a legitimate local public purpose, by failing to address "the manner in which local waste, (sic) transported and stored within Washington has superior safety and environmental virtues over waste produced elsewhere . . . ."\textsuperscript{154} Finally, the Washington law failed the third part of the \textit{Pike} test, that a state law should have only an inci-

\textsuperscript{146} Id. at 631.
\textsuperscript{147} Id.
\textsuperscript{148} Id. at 630.
\textsuperscript{149} Id.
\textsuperscript{150} 42 U.S.C. § 2021d(c).
\textsuperscript{151} 397 U.S. 137 (1970).
\textsuperscript{152} Spellman, 684 F.2d at 631.
\textsuperscript{153} Pike, 397 U.S. at 142.
\textsuperscript{154} Spellman, 684 F.2d at 631.
dental effect on interstate commerce, because Washington receives forty percent of the country's low-level nuclear waste.\textsuperscript{156}

The Ninth Circuit's reasoning in Spellman mirrors the rationale of Northern States.\textsuperscript{169} In both cases the court concluded that the AEA evidences Congress' implied preemption of state nuclear power regulation. In Spellman the court found that Washington's exercise of its police power was an illegal purpose under the AEA. However, this is not a reason to invalidate the Washington initiative, since the AEA expresses federal preemption of high level waste regulation, not that involving low-level wastes. On the other hand, the LLRWPA delegates full responsibility to states to control disposal of low-level nuclear wastes generated within their borders regardless of purposes.

The Spellman court also found that Washington could not exclude out-of-state wastes because it had not yet joined a regional compact at the time the initiative was passed.\textsuperscript{157} However, contrary to the court's assumption, Washington was not acting in any compact capacity when it closed its borders to out-of-state wastes. It was acting to fulfill the other mandate of the statute, that states control disposal of low-level wastes generated within their borders. Although the compact section is permissive ("States may enter into such compacts"),\textsuperscript{158} the responsibility section is mandatory ("Each State shall be responsible").\textsuperscript{159} The court could have interpreted Washington's closing of its dump to out-of-state wastes as a way of upholding the responsibility section. Pursuant to the LLRWPA’s mandate, Washington preserved space in the dump for locally-produced wastes and encouraged, even forced, other states to accept responsibility for their own wastes. Instead, the court confused the statute's requirements in two respects. First, it insisted that Washington abide by the 1986 deadline when that deadline is only relevant if a state decides to enter a compact. Second, it overlooked the fact that the statute requires states immediately to assume responsibility for disposal of their low-level wastes.

Finally, the court erred in using a commerce clause analysis to invalidate the Washington initiative. Such a traditional analysis is unwarranted where, as here, a federal statute mandates state activity. Although the court believed that the initiative failed the first part of

\textsuperscript{156} Id.
\textsuperscript{158} Spellman, 684 F.2d at 630.
\textsuperscript{159} Id. § 2021c(a)(1) (emphasis added).
the Pike test, the LLRWPA requires that a state be responsible for disposing of its own wastes. Furthermore, the LLRWPA's legislative history reveals that the statute addresses an underlying problem of great magnitude. Senators Strom Thurmond and Ernest Hollings, who introduced the LLRWPA as a bill, explicitly stated Congress' mood and purpose in passing the legislation. Senator Thurmond declared:

It is extremely unfair to allow three states to become the "dumping grounds" for waste which all 50 states generate. If other states are to share in the benefits of nuclear power production and nuclear medicine, they must begin to share in the responsibilities which include the unpleasant task of waste disposal.

Perhaps the most effective way to force other states to share in waste disposal responsibilities is to deny them access to existing facilities. Washington fulfilled the congressional mandate set forth in the LLRWPA by regulating its own nuclear waste and excluding out-of-state waste. If this burdens interstate commerce, it is allowed under the statute.

Further, Washington's action has only an incidental effect on interstate commerce. The Washington initiative bans the "importation and storage of nonmedical radioactive wastes generated outside Washington, unless permitted by interstate compact" (emphasis added). Since Governor Spellman campaigned on the basis of negotiating a regional compact, and since Initiative 383 authorized the state to enter into such compacts, subject to state and congressional approval, it was probable that Washington would soon form a regional compact maintaining Richland as the first disposal site. This in turn would mean that Washington's ban would be lifted as to the other member states. Thus, the court could have found that the ban was more likely than not to be temporary, making the effect on interstate commerce only incidental.

The Ninth Circuit's commerce clause rationale, as used to invalidate Washington's initiative, contradicts Congress' express intention to delegate control of low-level waste disposal to the states because it applies the Pike test to a situation that Congress seems to have intended to remove from that type of scrutiny. Since Spellman was the
first case construing the LLRWPA, it may have inhibited other states from aggressively seeking to comply with the statute by forming regional compacts. In fact, the Low-Level Radioactive Waste Policy Amendment Act of 1985 was passed to expedite matters of compact formation.

B. State or Compact Authority?

1. Compact Option. The LLRWPA allows states to form regional compacts as necessary to carry out their responsibilities in disposing of their nuclear wastes. The Act's legislative history reveals that Congress considered regional compacts to be the most efficient way to handle the problem.\textsuperscript{166} Congress assumed that states would form six or eight regional compacts\textsuperscript{167} and that states without facilities would join with states that had facilities with “the idea of eventually establishing an efficient, safe system of regional disposal sites.”\textsuperscript{168}

2. Single State Option. While Congress envisioned regional compacts as the principal way of dealing with the low-level nuclear waste disposal problem, no state is forced to participate in a compact. The main incentive for states to form compacts is that the compact group is expected to accept waste only from within its region.\textsuperscript{169} What happens to a state that does not join a compact? A single state may build a facility or may license a commercial facility to dispose of the state’s own low-level nuclear waste, but the LLRWPA does not grant the state permission to refuse to accept such wastes generated in other states. Only groups of states that have formed compacts have that option. In fact, the \textit{Spellman} court stressed that only “states signatory to a compact could exclude waste from nonsignatory states without violating the Supremacy or Commerce Clause.”\textsuperscript{170} If a state cannot restrict access to its dump to only those wastes generated within its borders, no incentive exists to develop a disposal facility. Yet not all states can or should join in a regional compact,\textsuperscript{171} and no state is required to do so.

\textsuperscript{166} \textit{Id.}
\textsuperscript{167} \textit{Id.}
\textsuperscript{168} \textit{Id.}
\textsuperscript{170} 684 F.2d at 630.
\textsuperscript{171} Alaska and Hawaii would join with other states only at a significant risk to safety, since their wastes would be transported thousands of miles. New York, which generates approximately 11\% of the nation’s low-level waste (see Boston Globe, Dec. 29, 1983, at 2, table at cols. 4-6), might not be welcomed into a compact if another state had to play host to New York’s waste, while New York might not care to be host and accept even more waste than the substantial amount it generates.
The sensible resolution is to allow a single state option in which a particular state could receive congressional approval to be considered a region. It would then be able to dispose of its own waste without being required to accept wastes from other states. Senators Thurmond and Hollings said that states should either dispose of their own waste or arrange with other states willing to accept the waste.\footnote{126 CONG. REC. 20,136 (1980) (statement of Sen. Thurmond).} The incentive needed for a state to proceed with its own disposal is the exclusionary protection granted to regional compacts. Allowing a single state to be considered a region similar to a compact region provides that incentive. The majority of states will probably still form into regional compacts, but states with special circumstances, concerning, for example, quantities of waste produced or geographical isolation, need the flexibility that the single state option allows. Despite the Spellman holding, the single state option comports with the LLRWPA's intent and with its language.

Granting compact status to single states is also consistent with the market participant exception to the commerce clause. A state that enters the market not as a regulator, but as a participant or proprietor, escapes commerce clause regulation.\footnote{G. GUNTHER, CONSTITUTIONAL LAW § 5-1, at 298 (1985). A state is a market participant when it spends money to run a proprietary enterprise or provides subsidies or other economic incentives that help in-state business.} In the context of low-level nuclear waste disposal, this means that the state would have to construct and run its own waste disposal facility and block the establishment of private commercial facilities, since these sites could accept out-of-state wastes.\footnote{See Prochaska, Low-Level Radioactive Waste Disposal Compacts, 5 VA. J. OF NAT. RESOURCES L. 383, 397 (1986).} Therefore, if a state becomes a participant in the market, it may choose with whom it will do business. The Supreme Court in Hughes v. Alexandria Scrap, Inc.\footnote{426 U.S. 794 (1976).} sustained this concept. In a plan to rid the state of abandoned automobiles, Maryland passed a statute providing that anyone who owned a "hulk" (defined as an inoperable automobile more than eight years old) could turn it over to a scrap processor, who would receive a bounty from the state for each hulk it destroyed.\footnote{Id.} Requirements for out-of-state processors to obtain a bounty from the state of Maryland were more complex than those for in-state processors. When a Virginia processor challenged the law because it discouraged suppliers from taking hulks out of state for processing, the Court upheld it. Justice Powell,
writing for the majority, stated that Maryland did not seek to prohibit the flow of interstate commerce; it merely entered the market as a participant. He declared, "Nothing in the purposes animating the Commerce Clause prohibits a state, in the absence of congressional action, from participating in the market and exercising the right to favor its own citizens over others." In Spellman, Washington claimed that it was acting as a market participant in refusing to accept out-of-state waste. The court rejected this argument, concluding that Washington, in refusing entry at its borders to out-of-state waste, was acting as a market regulator and not as a proprietor. To have been considered a proprietor, Washington should have owned and operated the Richland site itself and refused entry to out-of-state waste at the site.

A single state that wants to be eligible for regional compact status, therefore, must exhibit certain characteristics in its waste disposal operations. It must own and operate its disposal site, be able to keep commercial sites from operating within the state unless the operators agree to restrictive terms mirroring the state facility's terms, and restrict access to the sites to waste generated within the state rather than ban importation of all out-of-state wastes. These, according to the Ninth Circuit, are the criteria necessary to satisfy the market participant exception of the commerce clause.


a. The Compact Approach. Potential problems with compacts include the number of compacts formed, the way they are formed, the status they will have after congressional approval, and whether states can withdraw from them. Although Congress originally considered six to eight compacts sufficient and did not want fifty sites in fifty states, there are currently eight compacts, with more planned.

177 Id. at 810.
178 Spellman, 684 F.2d at 631.
179 Id. Currently Texas is the only state committed to the single state option, although New York and Massachusetts are considering it. See Nichols, States Inch Toward 1986, NUCLEAR INDUSTRY, June 1985, at 8.
180 See supra note 172 and accompanying text.
181 The compacts approved by Congress to date are:
Central: Arkansas, Iowa, Kansas, Louisiana, Minnesota, Nebraska, North Dakota, and Oklahoma (42 U.S.C. § 2021d(d) Subtitle B, sec. 222).
As more compacts are formed, more sites must be found, approved and built. The LLRWPA’s intent is to dispose of wastes as safely and economically as possible. A proliferation of sites works against this goal.

Another potential problem with compacts is that it is possible for a state to enter a compact without submitting the decision to the electorate. On such a highly emotional issue as nuclear waste disposal, a state might be tempted to enter a compact through the back door, avoiding a confrontation with voters. Voter initiatives and state laws have shown that many people are reluctant to allow nuclear waste storage in their states. However, at least one court has held that agreements to form compacts are valid if approved by “a board, commission, or party duly authorized to do so by the legislature.” Even informal agreements made by public service commissions have been found to be binding as interstate compacts. If a state need not seek the consent of the full legislature, it could commit itself to a compact without letting voters express their views.

Apart from the way they are formed, compacts create the problem of a third layer of authority in addition to that of the federal government and the states. For example, independent states may form a compact. Once the compact is ratified by Congress, however, it becomes an independent entity “of binding force . . . operating with the same effect as a treaty between sovereign powers.” Some courts have held that only the party states may contest the formation of the

Midwest: Iowa, Indiana, Michigan, Minnesota, Missouri, Ohio, Wisconsin. (42 U.S.C. § 2021d(d) Subtitle B, sec. 225.)
Northeast: New Jersey, Delaware, Maryland. (42 U.S.C. § 2021d(d) Subtitle B, sec. 227.)

A ninth, yet unapproved compact is Appalachian: Pennsylvania and West Virginia. See Prochaska, supra note 174, at 387.

182 The California legislature recently approved California’s membership in a four state compact to include Arizona, North Dakota, and South Dakota. Congress has not approved this compact yet. Carlson, Quick Name a State Willing to Accept Radioactive Waste, Wall St. J., June 30, 1987, at 35, col. 1.

183 See infra text accompanying note 185.

184 See Spellman, 684 F.2d 627. See supra note 3.

185 General Expressways v. Iowa Reciprocity Bd., 163 N.W.2d 413, 419 (Iowa 1968).

186 Id. See also Safe Harbor Water Power Corp. v. Federal Power Comm’n, 124 F.2d 800 (3d Cir.), appeal dismissed, 313 U.S. 546 (1941). (The Third Circuit held valid as an interstate agreement an informal agreement made by the public service commissions of Pennsylvania and Maryland to regulate electricity.).

This essentially denies standing to any of the compact opponents. As an independent entity, the compact may control its member states' actions. Once approved by Congress, a compact is a contract that "may not be amended, modified, or otherwise altered without the consent of all parties." For example, in a dispute over a New York-New Jersey compact regarding shipping regulations between the two states, a court held that legislation passed by New York to increase the compact agency's liability would not be effective unless New Jersey consented. Various similar holdings suggest that state law can be subordinated to compact provisions.

Another possible major problem involves state withdrawal from compacts. Traditionally, just as a state could not unilaterally pass legislation affecting the compact of which it was a member, neither could it unilaterally withdraw from a compact. Yet the LLRWPA permits a state to withdraw upon two to five years advance notification to the compact if it finds the burden of membership too great. A state might easily perceive its membership burden to be too great if it is chosen as the repository host site. A certain flexibility in membership requirements is necessary to induce a state to join, but if there is no real certainty that the burdens of disposal will be shared, the system may not operate optimally.

Three of the approved compacts were formed around existing sites. These are: The Northwest Compact, with the disposal site at Richland, Washington; the Rocky Mountain Compact, with facilities at Beatty, Nevada; and the Southeast Compact, with access to the site at Barnwell, South Carolina. To date no state has tried to withdraw from one of these compacts, so the withdrawal provisions remain untested. However, Utah and Wyoming belong to both the Rocky Mountain and the Northwest compacts. Whether they will send waste to one or both or will have to withdraw from one is un-

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188 State v. Cunningham, 102 Miss. 237, 244, 59 So. 76, 79 (1912).
192 See supra note 190 and accompanying text.
194 Prochaska, supra note 174, at 394.
195 See supra note 181.
196 Id.
known. Kansas and North Dakota, both currently in the Central Compact, and Arizona in the Rocky Mountain Compact, want to realign with California in a new compact. The notification, withdrawal, and realignment of these states may set the standard for others seeking to shift membership.

b. The Single State Approach. Possible problems with the single state option include meeting the requirements of the market participant exception, possible preemption of state radioactive waste regulation, and the expense of maintaining a facility. The market participant exception requires that the state be a proprietor. If a state were not able to prohibit the operation of a commercial site within its borders, it could not cut off the flow of out-of-state waste even if it were the proprietor of a site. Unless state prohibitory laws are drafted very carefully, they could be preempted by federal laws in the areas of health and safety. Finally, unless a state is a large generator of low-level nuclear waste, it may find it is too expensive to develop and operate a disposal site.

VII. CONCLUSION

Both Congress and the states realize that low-level nuclear waste disposal presents crucial problems that must soon be solved. Although maintaining that nuclear waste safety is traditionally an area of federal regulation, Congress has recognized that the states should participate in waste disposal policy determinations. To this end, Congress has delegated regulatory authority to the states to dispose of their own waste, preferably by forming regional compacts. The delegation of authority to states is an effective way to handle the problem. The compact concept may be less effective. The compact system, in creating an added layer of government, may allow states too much leeway in deciding whether, when, and with whom to form compacts. The biggest obstacle to the success of the compact concept might be the LLRWPA provision that allows states to withdraw from compacts with relative ease. The single state option, arguably legal under the statute, is a valid alternative for only a few states.

Congress could adopt various means to ensure that the statute’s goals are achieved. One way is to establish an upper limit on the number of compacts. Another way is to set a minimum number of

197 Id.
198 See supra note 173.
states that a compact must contain. The Central Midwest Compact was approved with only two members, Illinois and Kentucky.\textsuperscript{200} Perhaps such a small compact is a legislative indulgence. Another possibility is to put stringent limits on the single state option to ensure that only states producing significant amounts of low-level waste can consider it. States that produce minimal amounts of low-level waste need not be forced to join compacts if they can arrange to buy space in a nearby disposal facility. Not until the percentage of waste they produce rises to a particular triggering point would they need to join a compact.

As the 1993 deadline\textsuperscript{201} for states' low-level radioactive waste disposal plans draws near, Congress may need to consider a more forceful approach that defers less to states' preferences and more to public safety.

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\textsuperscript{200} See \textit{supra} note 181.