The California Project: Federal Government Continues Trend of Preempting State Law in the Field of Nuclear Safety in Boeing Co. v. Robinson

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THE CALIFORNIA PROJECT: FEDERAL GOVERNMENT CONTINUES TREND OF PREEMPTING STATE LAW IN THE FIELD OF NUCLEAR SAFETY IN BOEING CO. V. ROBINSON

I. Introduction

After witnessing the vicious power of nuclear technology at the conclusion of World War II, the United States public clamored for the government to use nuclear technology for peaceful purposes in order to atone for the destruction of Hiroshima and Nagasaki.1 Because of public outcry, the federal legislature and judiciary adopted a policy of promoting nuclear energy for peaceful use.2 The federal government, however, found itself dependent upon civilian scientists to draft legislation pertaining to subjects and technologies it did not yet understand.3 Thus, Congress partnered with the scientific community to draft the Atomic Energy Act (AEA) of 1946 and implement its vision for a new technological age.4

With subsequent amendments to the AEA, the federal government sought to expand the role of private entities and individual states in developing nuclear technology and regulating nuclear development.5 As the public grew more concerned about nuclear safety in the 1960s, however, states scrambled to regulate and control radioactive materials despite the federal government’s policy of proliferation.6 Consequently, the preemption doctrine curtailed many state attempts to regulate nuclear energy because the federal government still sought to promote nuclear technology.7 The preemption doctrine, found in the Supremacy Clause of the United States Constitution, declares that Congress may expressly or implic-

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2. See id. at 598 (discussing legal system’s “promotional attitude” toward peaceful exploration of nuclear energy).
3. See id. at 601 (describing laymen government officials’ necessary reliance on scientists to understand new technologies of atomic age).
4. See id. at 600 (discussing “unprecedented cooperation” between science and government to promote nuclear technology).
5. See id. at 601-04, 609-39 (outlining judicial mindset from inception of AEA to more contemporary attitudes about nuclear safety).
6. See Maleson, supra note 1, at 609-10 (introducing federal preemption of state laws attempting to regulate nuclear matters in decade of federal nuclear promotion).
7. See id. (discussing complete foreclosure of state laws regulating nuclear power).
ily preempt state law if the state law regulates in a specific field or actually conflicts with federal legislation. The tension between the state and the federal governments regarding regulation of nuclear energy extends back to the 1950s and still persists today.

In 2011, in Boeing Co. v. Robinson (Boeing), the United States District Court, Central District of California, invalidated the California legislature’s effort to stimulate radiological cleanup of the Santa Susana Field Laboratory (SSFL), a federal nuclear research and testing site located within the state. The court reasoned that Senate Bill 990 (SB 990) “attempts to assert state jurisdiction over the cleanup . . . at SSFL.” As such, the court held the AEA preempted SB 990 for regulating nuclear technology, and SB 990 violated the doctrine of intergovernmental immunity by regulating Boeing, a federal contractor. In reaching its decision, the court examined the AEA’s text and history of decisions interpreting the AEA and reaffirmed the federal and state governments’ traditional roles in regulating nuclear technology.

This Note explores the court’s reasoning in Boeing and its potential impact on future nuclear regulation and cleanup efforts. Part II summarizes the facts in Boeing. Next, Part III explores the AEA, the preemption doctrine, and previous court decisions interpreting both. Then, Part IV outlines the court’s reasoning in Boeing. Subsequently, Part V compares and contrasts the court’s

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11. See id. at *15 (invalidating Senate Bill 990 in entirety).
12. See id. at *5 (establishing purpose of SB 990).
13. See id. at *7-14 (discussing SB 990’s invalidity under preemption doctrine and doctrine of intergovernmental immunity).
14. See id. at *15-16 (explaining court’s rationale).
15. For a critical analysis of Boeing, see infra notes 156-208 and accompanying text; for potential impacts of the decision, see infra notes 209-226 and accompanying text.
16. For a discussion of the facts of Boeing, see infra notes 21-59 and accompanying text.
17. For an explanation of the AEA and preemption doctrine along with previous decisions interpreting them, see infra notes 60-120 and accompanying text.
18. For a narrative analysis of the court’s reasoning in Boeing, see infra notes 121-154 and accompanying text.
rationale in Boeing with previous court decisions on similar issues.\textsuperscript{19} Lastly, Part VI considers the decision's future impact on nuclear site cleanup efforts and the implications of the continuing tension between state and federal governments in nuclear energy regulation.\textsuperscript{20}

\section*{II. FACTS}

The Santa Susana Field Laboratory opened in the 1940s as a federal nuclear research and development site.\textsuperscript{21} Chosen for its remoteness due to the dangerous nature of the experiments the federal government wished to conduct there, the site occupies 2,850 acres in Ventura County, California.\textsuperscript{22} After the site's inception, the federal government contracted with Boeing to work with the National Aeronautics and Space Administration (NASA) and the Department of Energy (DOE) to research, develop, and test technologies for nuclear energy generation, space exploration, and national defense.\textsuperscript{23} These efforts continued for nearly sixty years.\textsuperscript{24}

Federal agencies performed two major types of research at SSFL.\textsuperscript{25} From the 1950s to the 1980s, the DOE commissioned research for peaceful uses of nuclear technology.\textsuperscript{26} For this purpose, the DOE designated an entire section of the site to house over two hundred buildings and sixteen nuclear reactor facilities.\textsuperscript{27} As a consequence of the nuclear research activities performed at SSFL, extensive radiological contamination infected the site's soil, groundwater, and bedrock.\textsuperscript{28}

\textsuperscript{19} For a critical analysis of Boeing as compared with previous decisions on the issue of the AEA and preemption, see infra notes 156-208 and accompanying text.

\textsuperscript{20} For an examination of potential impacts of the Boeing decision, see infra notes 209-226 and accompanying text.


\textsuperscript{22} See id. (indicating SSFL was chosen for remote location because of dangerous nature of rocket engine and nuclear testing experiments).

\textsuperscript{23} See id. (listing federal government and Boeing activities at SSFL).

\textsuperscript{24} See id. (stating federal government and Boeing used SSFL for research and testing of nuclear and rocket technologies since late 1940s).

\textsuperscript{25} See id. at *2-4 (discussing nuclear technology research and rocket testing at SSFL).

\textsuperscript{26} See Boeing, 2011 WL 1748312, at *2 (accounting for large area of SSFL reserved specifically for Boeing and DOE nuclear research).

\textsuperscript{27} See id. (describing DOE's SSFL testing facilities).

\textsuperscript{28} See id. (explaining significant contamination at SSFL caused by nuclear fuel manufacturing, spent nuclear fuel, and core damage to one of DOE's reactors in 1959). Specifically, the court noted that nuclear byproduct, source, and special nuclear material infected the soil. \textit{Id.} The court also determined the majority of
The second type of research performed at SSFL involved the testing of rocket technologies.\textsuperscript{29} From the end of World War II until 2006, the United States Air Force, and subsequently NASA, used the site for testing ballistic missile technology and liquid propellant rocket engines.\textsuperscript{30} As a federal contractor, Boeing also developed and tested rocket engines and maintained six test sites on both federally-owned and Boeing’s privately-owned land within SSFL.\textsuperscript{31} As a result of these activities, NASA estimated that over 500,000 gallons of trichloroethylene (TCE) solvent contaminated the soil, 97\% of which was released before the inclusion of a TCE contamination prevention system in 1961.\textsuperscript{32} In addition to TCE, other volatile chemical compounds permeated all areas of the site.\textsuperscript{33}

The California Department of Toxic Substance Control (DTSC) determined the vast majority of the nuclear and chemical pollution at SSFL resulted from federal activities, whereas the actions of private entities caused only a negligible amount of the pollution.\textsuperscript{34} Additionally, the intrinsic link between the pollution from private-entity activities at the site and the pollution caused by NASA and the DOE made it impossible to distinguish private from federal contamination.\textsuperscript{35} Consequently, California attributed the contamination of SSFL almost exclusively to the DOE and NASA.\textsuperscript{36}

The SSFL site stood idle after federal agencies closed its nuclear testing facilities in the 1980s, during which time Boeing, the DOE, and NASA made no decontamination efforts.\textsuperscript{37} The DOE,

\begin{itemize}
  \item \textsuperscript{29} See \textit{id}. at \textsuperscript{*3} (describing federal rocket testing activities at SSFL).
  \item \textsuperscript{30} See \textit{id}. (noting development of rocket and missile technology at SSFL since 1947).
  \item \textsuperscript{31} See \textit{Boeing}, 2011 WL 1748312, at \textsuperscript{*3} (describing Boeing’s activities and objectives).
  \item \textsuperscript{32} See \textit{id}. (singling out TCE as example of contaminants polluting ground at SSFL). TCE is a solvent used to clean liquid propellant rocket engines and test stands. \textit{Id}.
  \item \textsuperscript{33} See \textit{id}. (listing supplemental sources of chemical contamination). Other chemical contaminants included: perchlorate, heavy metals, polychlorinated biphenyl (PCB), dioxin, volatile organic compounds, and semi-volatile organic compounds. \textit{Id}.
  \item \textsuperscript{34} See \textit{id}. (explaining any private contamination at SSFL “would be de minimis” compared to federal activity at site).
  \item \textsuperscript{35} See \textit{id}. (adding DTSC determination that any contamination resulting from Boeing’s activities would be indistinguishable and inseparable from federal contamination because all operations occurred at same time and used same facilities, chemicals, and materials).
  \item \textsuperscript{36} See \textit{Boeing}, 2011 WL 1748312, at \textsuperscript{*3} (noting impossibility of any “separate remediation” for private activity).
  \item \textsuperscript{37} See \textit{id}. at \textsuperscript{*4} (recognizing lack of cleanup efforts by DOE).
\end{itemize}
responsible for the nuclear cleanup of the site, investigated the radiological contamination at SSFL for over forty years.\(^8\) The agency finally approved cleanup procedures for the radiological contamination in 1996 that would make the area suitable for suburban residential, recreational, or industrial use.\(^9\)

The DOE did not, however, address cleanup of the chemical contamination at SSFL, a responsibility undertaken by the DTSC.\(^{40}\) While the DTSC lacked authority over the cleanup of the radiological waste governed by the AEA, it analyzed, catalogued, and supervised the chemical cleanup of the site pursuant to the California Health and Safety Code.\(^{41}\) This analysis proceeded over twenty-five years.\(^42\) Finally, in 2007, the DTSC, Boeing, the DOE, and NASA agreed on a Consent Order for Corrective Action (Consent Order) to decontaminate SSFL.\(^{43}\) Nonetheless, the Consent Order was ultimately ineffective because it failed to mandate cleanup of the radiological contamination at the site.\(^44\)

Faced with decades of federal government inaction in organizing the radiological cleanup of SSFL, the California legislature passed SB 990 in October of 2007 to prompt cleanup efforts.\(^45\) When the legislature passed SB 990, the area surrounding SSFL was no longer remote; it housed more than 150,000 people within five miles of SSFL and half a million people within ten miles of the site.\(^46\) In light of these population increases, the state legislature passed SB 990 to give California the authority to mobilize the cleanup of the radiological waste at SSFL and prescribe higher stan-

\(^{38}\) See id. (delineating DOE cleanup and investigation procedures).

\(^{39}\) See id. (describing delay of cleanup due to analyses and surveys of site contamination).

\(^{40}\) See id. (identifying DTSC’s supervision of chemical-contamination cleanup at SSFL).

\(^{41}\) See Boeing, 2011 WL 1748312, at *4 (illustrating DTSC’s authority under Resource Conservation and Recovery Act (RCRA) to organize cleanup of non-radiological contamination at federal facilities). The California Health and Safety Code was modeled after the RCRA of 1976. Id. RCRA allows state laws to regulate the cleanup of non-radiological nuclear contamination. Id.

\(^{42}\) See id. (listing DTSC’s analyses of chemical contamination at SSFL). The DTSC examined more than 35,000 samples of soil, groundwater, and bedrock to analyze the contamination throughout the site and determine its sources. Id.

\(^{43}\) See id. at *5 (presenting Consent Order concerning chemical cleanup of SSFL).

\(^{44}\) See id. (describing Consent Order as requiring parties clean up SSFL for residential purposes). The Consent Order, however, failed to account for any radiological contamination at the site. Id.

\(^{45}\) See id. (stating motivations for SB 990 were to mobilize radiological cleanup of SSFL for promotion of public health and safety).

\(^{46}\) See Boeing, 2011 WL 1748312, at *1 (analyzing change in demographics of area surrounding SSFL).
dards for the overall decontamination of the laboratory.\textsuperscript{47} Applying only to SSFL, SB 990 mandated a particular course of action to make the area suitable for suburban living, recreation, and industry, as well as for agricultural use.\textsuperscript{48} The usual procedure to determine the appropriate decontamination level for a polluted area involves an investigation into the potential health risk for future users and the effect on the environment from harmful exposure to the residual contamination.\textsuperscript{49} The California legislature’s proposed plan, however, avoided such an examination and mandated the land should be available for subsistence farming with no analysis of reasonable future use.\textsuperscript{50} The legislature decided the land could be used for agriculture without consulting or receiving approval from the DOE or the DTSC; in fact, both agencies had already concluded citizens could not reasonably use the site for agriculture.\textsuperscript{51} The DTSC determined it could take as long as 50,000 years to make the site safe for farming.\textsuperscript{52}

In December 2010, the DTSC, the DOE, and NASA again attempted to negotiate to compel cleanup of SSFL, which resulted in Administrative Orders on Consent (AOCs).\textsuperscript{53} While the AOCs addressed cleaning up the soil contamination, the parties disagreed on the cleanup of groundwater and bedrock and did not account for certain areas of the site entirely; also, Boeing did not participate in the negotiation of the AOCs.\textsuperscript{54} Instead, Boeing filed a complaint against the DTSC on February 28, 2011, in which it argued the AEA preempted SB 990 under the Supremacy Clause of the United States Constitution.\textsuperscript{55} The official hearing took place on April 11, 2011, at which the United States District Court, Central District of California granted Boeing’s motion for summary judgment.\textsuperscript{56}

\textsuperscript{47} See id. at *5 (describing SB 990 as California’s attempt to assert state jurisdiction over radiological decontamination).
\textsuperscript{48} See id. (delineating strict future land-use standards of SB 990).
\textsuperscript{49} See id. (describing process for determining appropriate decontamination standard).
\textsuperscript{50} See id. (reaffirming SB 990’s standards as avoiding customary future risk assessment of contaminated area).
\textsuperscript{51} See Boeing, 2011 WL 1748312, at *5 (commenting on conclusions by DOE and DTSC concerning future SSFL use).
\textsuperscript{52} See id. *6 (noting DTSC’s remediation analysis).
\textsuperscript{53} See id. (describing AOCs between DTSC, DOE, and NASA addressing radiological and chemical cleanup of soil by DOE and NASA at site).
\textsuperscript{54} See id. (assessing AOCs shortcomings in affecting decontamination of SSFL).
\textsuperscript{55} See id. at *1 (establishing Boeing’s claim of AEA preemption of SB 990).
\textsuperscript{56} See Boeing, 2011 WL 1748312, at *16 (granting Boeing’s motion for summary judgment).
court reasoned SB 990 regulated a field federally controlled by the AEA, and therefore the AEA superseded SB 990 under the Supremacy Clause.57 Furthermore, SB 990 could not apply only to the private contamination at SSFL because it was indistinguishable from the federal contamination.58 The court also reasoned that even if the private and federal contamination could be distinguished, the California legislature did not have the authority to impose strict requirements on the federal cleanup effort.59

III. BACKGROUND

Boeing is the most recent decision in a series of cases interpreting the division of authority between state and federal governments concerning nuclear safety.60 The federal government has used the authority granted by the AEA to regulate nuclear technology since the AEA’s inception, which has compelled courts to often review the language and history of the AEA when deciding cases concerning the issue of preemption in nuclear technology regulation.61 Courts combine analyses of the AEA with the preemption doctrine because these federal statutes together can invalidate any conflicting state law.62

A. Evolution of the Atomic Energy Act

After the conclusion of World War II, and in the wake of the development of nuclear energy, the federal government acted as the sole regulator of nuclear technology and sought to encourage its potential peaceful uses.63 With the enactment of the AEA in 1954, the federal government began to encourage private development and research of nuclear technology for peaceful uses.64 Accordingly, the government relaxed its exclusive jurisdiction over

57. See id. at *9 (reasoning SB 990 regulates federally occupied field).
58. See id. at *2-3 (describing “inextricably intermixed” nature of private and federal contamination at SSFL).
59. See id. at *15-16 (noting California’s lack of authority to regulate DOE activity).
61. See id. at 111 (introducing AEA history).
62. See id. at 112 (outlining federal preemption doctrine).
63. See id. at 111 (discussing federal government’s role in nuclear technology regulation).
64. See id. (noting federal government’s retreat from monopolizing use and regulation of nuclear energy in favor of private development and state oversight).
nuclear matters and allowed the states to partner with federal agencies to regulate certain aspects of nuclear technology proliferation.\(^{65}\) The federal government tasked the Atomic Energy Commission (AEC), which later became the Nuclear Regulatory Commission (NRC), with promoting the exploration of nuclear energy and protecting the public from its dangers.\(^{66}\) Despite the federal government’s relaxed control, the AEA still gave the AEC exclusive authority over many serious issues surrounding nuclear materials, including the protection of public health and safety against the risks of nuclear technology.\(^{67}\)

Under the AEA of 1954, states could regulate the economic aspects of nuclear technology—the need for and cost of building nuclear power plants.\(^{68}\) Yet, states lacked the authority to regulate nuclear materials to protect against radiation hazards.\(^{69}\) The federal government still perceived the regulation of actual nuclear matters as too important to leave to the states.\(^{70}\) Accordingly, states could only regulate the safety of nuclear technology with approval from the federal government.\(^{71}\)

In 1959, an amendment to the AEA widened the states’ role in nuclear technology regulation by allowing states to enter into agreements with the NRC to receive regulatory authority over certain nuclear materials.\(^{72}\) The amended AEA, however, limited the authority the NRC could give to the states to decisions regarding construction and disposal of nuclear plants, and chemical cleanup of contaminated sites.\(^{73}\) Congress continued to concentrate on promoting the development of nuclear energy.\(^{74}\) Consequently,

\(^{65}\) See Smith, supra note 60, at 111 (outlining states’ ability to determine need, reliability, and cost of nuclear technology and federal government’s control over licensing “transfer, delivery, receipt, acquisition, possession, and use of nuclear materials”).

\(^{66}\) See Maleson, supra note 1, at 602-03 (discussing purposes of AEC).

\(^{67}\) See The Supreme Court, 1982 Term—State Regulation of Nuclear Power, 97 Harv. L. Rev. 258, 239 (1983) (hereinafter State Regulation of Nuclear Power) (assuring exclusive authority over safety of nuclear power rested with NRC).

\(^{68}\) See Smith, supra note 60, at 111 (delineating state authority over economics of nuclear matters).

\(^{69}\) See State Regulation of Nuclear Power, supra note 67, at 239 (describing limits of state authority over nuclear power).

\(^{70}\) See Smith, supra note 60, at 122 (noting federal government’s belief that nuclear safety is too important for states to regulate).

\(^{71}\) See id. (explaining necessity of federal government authorization for states to regulate nuclear safety).

\(^{72}\) See id. at 111 (describing purpose of 1959 amendment to AEA).

\(^{73}\) See id. (listing limitations of state authority under AEA amendment).

\(^{74}\) See Maleson, supra note 1, at 609 (discussing intensification of congressional focus on development of nuclear power).
the congressional attitude stymied worries about the immense danger of nuclear technology that arose during the following decade. As a result, federal law preempted many state regulations during the 1960s because states could not interfere with federal activity.

B. The Preemption Doctrine

The preemption doctrine is rooted in the Supremacy Clause of the United States Constitution. Specifically, Article VI, Section Two names the Constitution as the "[S]upreme Law of the Land" that overrides the "Laws of any State to the Contrary." By this principle, federal laws constitutionally preempt conflicting state laws in several different ways. First, Congress may protect a particular program from state interference with express indication in the text of a federal statute. Second, Congress may preempt state law by occupying a field with a dominant federal interest that leaves no room for state legislation in the area. The federal government uses this type of preemption most often in matters concerning nuclear technology and the AEA. Third, federal law preempts a state law that either directly conflicts with a federal statute or obstructs the purpose or objectives of Congress. For instance, if compliance with both the state and federal regulations is impossible, or if a state law stands as an obstacle to the goals or objectives of federal law, the federal law preempts the state regulation and renders it void.

To avoid these conflicts, many federal regulations include savings clauses, which allow states to impose more stringent, but not less stringent, requirements than the federal law on the subject. A

75. See id. at 610 (presenting federal preemption of state regulations).
76. See Smith, supra note 60, at 112 (stating state law may be preempted by express terms of congressional acts, congressional intent to occupy particular field, or conflict with federal law).
78. U.S. CONST. art. VI, cl. 2 (outlining supremacy of Constitution).
79. See Slaughter & Auslander, supra note 77, at 18 (presenting different types of preemption).
80. See id. (defining express preemption).
81. See id. (explaining field preemption).
82. See id. at 20 (connecting field preemption with state regulation of nuclear technology).
83. See id. at 18 (describing conflict preemption).
84. See Slaughter & Auslander, supra note 77, at 18 (noting key inquiry about whether state laws conflict with federal law or render compliance with federal law impossible).
85. See id. (describing possible role for state regulation).
state law with a savings clause, however, still falls under the three-pronged preemption doctrine described above. Thus, any state law whose provisions conflict with federal regulation is preempted.

C. The Supremacy Clause and Its Limits (or Lack Thereof)

The seminal case on preemption and the AEA is Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Commission (Pacific Gas), which involved an attempt by the State of California to pass a statute conditioning the construction of a nuclear power plant on a finding by the state energy commission that the plant would have adequate facilities and means for storing nuclear waste. The Supreme Court of the United States decided the statute withstood preemption by the AEA because it had an economic, rather than a nuclear safety, purpose. The Court held the AEA does not supplant the traditional roles and police powers of the states, including the ability to make economic decisions about the need for and cost of constructing a new power plant. The Court justified its holding on the basis that the provisions of the AEA demonstrated Congress’s intent to preserve the “dual regulation of nuclear-powered electricity generation.” States may regulate the economic aspects of nuclear facilities, but because the federal government completely occupied the field of nuclear safety, any state law attempting to regulate nuclear safety would be preempted. Pacific Gas remains a highly influential case regarding preemption issues because it outlines the division of power between

86. See supra notes 79-84 and accompanying text for an outline of the different types of preemption.
87. See Slaughter & Auslander, supra note 77, at 18 (outlining tension between state and federal regulations that most often is source of controversy).
89. See id. at 194-95 (holding states have ability to regulate economics of nuclear power).
90. See id. at 216 (finding economic purpose for California statute).
91. See id. at 205 (maintaining states “retain their traditional responsibility” in nuclear technology field).
92. Id. at 211-12 (summarizing scheme of regulation under AEA). “[T]he federal government maintains complete control of the safety and ‘nuclear’ aspects of energy generation; the states exercise their traditional authority over the need for additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like.” Id. at 212.
the state and the federal governments in nuclear technology regulation.\textsuperscript{94}

More recently, in \textit{United States v. Kentucky (Kentucky)},\textsuperscript{95} the United States Court of Appeals for the Sixth Circuit applied the division of authority delineated in \textit{Pacific Gas} to the Kentucky legislature's attempt to regulate the disposal of nuclear waste.\textsuperscript{96} The court determined federal law preempted the state statute regulating nuclear waste disposal because the AEA exclusively allocated the matter of nuclear safety to the federal government.\textsuperscript{97} By the same token, Kentucky could not regulate the radioactive components of waste mixtures consisting of both radiological and non-radiological materials.\textsuperscript{98} Significantly, \textit{Kentucky} not only reiterated \textit{Pacific Gas} twenty years later but also held states could not circumvent federal preemption by attempting to use other sources of authority, such as the Resource Conservation and Recovery Act (RCRA), to regulate the nuclear materials covered by the AEA.\textsuperscript{99}

The United States District Court for the Eastern District of Missouri also invalidated a state plan for decontamination of a nuclear facility in \textit{Missouri v. Westinghouse Electric, L.L.C. (Westinghouse Electric)}.\textsuperscript{100} The court struck down the plan because its stated purpose specifically involved nuclear safety.\textsuperscript{101} The case did, however, present an additional issue regarding preemption: whether the AEA overrides state regulation of decommissioned facilities as well as operating facilities.\textsuperscript{102} The district court decided that the AEA did prevent states from regulating decommissioned facilities, further expanding the federal government's occupation of the nuclear

\textsuperscript{94} See, e.g., Missouri v. Westinghouse Elec., L.L.C., 487 F. Supp. 2d 1076, 1083 (E.D. Mo. 2007) (showing recent application of \textit{Pacific Gas & Electric Co.}).

\textsuperscript{95} 252 F.3d 816 (6th Cir. 2001).

\textsuperscript{96} See id. at 821 (outlining state conditions imposed on DOE for waste disposal). The nuclear waste was a combination of radiological and non-radioactive hazardous materials. \textit{Id.}

\textsuperscript{97} See id. at 823 (noting radioactive materials are exclusively covered by AEA).

\textsuperscript{98} See id. at 824 (identifying preemption of state law for regulating materials covered by AEA).

\textsuperscript{99} See id. at 823-24 (rejecting ability to act in accordance with state law authority when state law conflicts with federal law).

\textsuperscript{100} See Missouri v. Westinghouse Elec., L.L.C., 487 F. Supp. 2d 1076, 1085-86 (E.D. Mo. 2007) (holding consent agreement between Missouri and Westinghouse to decontaminate nuclear facility was preempted).

\textsuperscript{101} See id. at 1088 (maintaining preemption doctrine remains applicable).

\textsuperscript{102} See id. at 1086 (addressing argument that preemption only applies to operating facilities).
D. Additional Tests for Preemption

Courts have primarily utilized the preemption analysis outlined above when examining state laws that in some way regulate nuclear technology.\(^\text{105}\) Over the years, however, the federal judiciary has employed other tests to justify or invalidate state statutes in the nuclear field, such as the Commerce Clause test, the "direct and substantial" test, and an examination of whether federal private contractors are shielded from state regulation.\(^\text{106}\) First, in Washington State Building & Construction Trades Council, AFL-CIO v. Spellman (Spellman),\(^\text{107}\) the United States Court of Appeals for the Ninth Circuit declared a state law regulating nuclear activity unconstitutional for violating the Commerce Clause of the Constitution, an approach infrequently used today.\(^\text{108}\) In Spellman, the Ninth Circuit struck down a Washington state statute prohibiting the transportation and storage of nuclear waste produced outside of the state.\(^\text{109}\) In addition to finding the statute violated the Supremacy Clause, the court also invalidated the law under the Commerce Clause.\(^\text{110}\) Following Spellman, Pacific Gas established preemption as the dominant test for state laws attempting to regulate nuclear safety; consequently, courts rarely evaluate statutes using the Commerce Clause today.\(^\text{111}\)

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\(^{103}\) See id. at 1087 (holding operational status of nuclear facility as inconsequential to preemption analysis).

\(^{104}\) See id. at 1086 (establishing NRC's exclusive jurisdiction over nuclear safety at both decommissioned and operational facilities).

\(^{105}\) See Maleson, supra note 1, at 610 (introducing preemption analysis for state laws regulating nuclear technology).

\(^{106}\) See, e.g., United States v. Manning, 527 F.3d 828, 839-40 (9th Cir. 2008) (presenting direct and substantial test); see also Washington State Bldg. & Constr. Trades Council, AFL-CIO v. Spellman, 684 F.2d 627, 630-32 (9th Cir. 1982) (analyzing state statute under Commerce Clause).

\(^{107}\) 684 F.2d 627 (9th Cir. 1982).

\(^{108}\) See id. at 630 (holding state law violated Commerce Clause).

\(^{109}\) See id. at 629 (describing nature of state statute).

\(^{110}\) See id. at 631 (outlining test for Commerce Clause violation). The court invalidated the state statute for failing to regulate evenhandedly, not accomplishing a legitimate local public purpose, and having more than an incidental effect on interstate commerce. Id.

Second, the Ninth Circuit used another rarely utilized test in United States v. Manning (Manning).\textsuperscript{112} Manning involved an attempt by the State of Washington to prevent additional storage of radioactive and hazardous waste at an in-state nuclear facility until the completion of the cleanup of the existing contamination.\textsuperscript{113} After finding the AEA preempted the state law, the court applied the direct and substantial test to strike down the law.\textsuperscript{114} In addition to the statute’s purpose to regulate nuclear safety, the court determined the statute was also void because it exerted direct and substantial effects on federal nuclear safety decisions.\textsuperscript{115} The direct and substantial test applies most often to state laws lacking an explicit nuclear safety purpose, but which may have adverse effects on the decisions of federal agencies responsible for regulating nuclear safety.\textsuperscript{116}

Third, the United States Supreme Court upheld an Ohio state statute awarding additional workers’ compensation benefits for injuries resulting from an employer’s violation of safety standards at a federally-owned, but privately-operated, nuclear facility in Goodyear Atomic Corp. v. Miller (Goodyear Atomic Corp.).\textsuperscript{117} The Court concluded Congress did not intend to eliminate all incidental regulatory effects of a state law on federal projects; in fact, the Court found express congressional authorization in Goodyear Atomic Corp.\textsuperscript{118} The Court reasoned a private federal contractor is as equally shielded from state regulation as the federal government itself, unless Congress authorizes such regulation.\textsuperscript{119} In the wake of Pacific Gas, the Supreme Court’s holding in Goodyear Atomic Corp. spread the preemption net even wider, insulating not just federal agencies’, but also agencies’ private contractors.\textsuperscript{120}

\textsuperscript{112} See United States v. Manning, 527 F.3d 828, 839-40 (9th Cir. 2008) (utilizing direct and substantial test).

\textsuperscript{113} See id. at 831 (discussing facts of case).

\textsuperscript{114} See id. at 839 (introducing direct and substantial test).

\textsuperscript{115} See id. at 839-40 (applying direct and substantial test to invalidate state statute).


\textsuperscript{117} 486 U.S. 174, 176 (1988) (presenting issue of whether state law can regulate private contractor at federal nuclear facility).

\textsuperscript{118} See id. at 186 (stating congressional concern in preventing direct regulation of federal activity).

\textsuperscript{119} See id. at 181 (maintaining federal facility operated by private contractor is shielded from direct state regulation).

\textsuperscript{120} See id. at 180-81 (asserting Supremacy Clause insulates federal installations from direct state regulation).
IV. NARRATIVE ANALYSIS

In Boeing, the United States District Court, Central District of California addressed the validity of a state regulation prescribing decontamination procedures for the SSFL facility. First, the court analyzed whether the AEA of 1954 preempted SB 990 under the Supremacy Clause of the Constitution. Second, the court examined the Bill’s legality under the intergovernmental immunity doctrine, which is also rooted in the Supremacy Clause.

A. SB 990’s Preemption by the Atomic Energy Act of 1954

In Boeing, the district court invalidated SB 990 because the AEA of 1954 preempted the law. The court utilized a test for preemption that examined whether “the matter on which the state asserts the right to act is in any way regulated by the federal government.” Furthermore, the court maintained a state law could be preempted in two ways. First, any state law regulating within a federally-occupied field is preempted. Second, if Congress did not completely occupy the field, a state law is preempted to the extent its application conflicts with a federal law such that it is impossible to follow both or it stands as an obstacle to the federal law’s goals.

The court recognized in Boeing the regulation of atomic energy had always been within the scope of congressional legislation, particularly since the enactment of the AEA. The AEA ceded certain limited powers to the states, but only if the federal government

122. See id. at *9-12 (discussing federal preemption of SB 990).
123. See id. at *12-15 (presenting analysis of intergovernmental immunity doctrine).
124. See id. at *8 (describing history of AEA).
127. See id. (citing Silkwood, 464 U.S. at 248) (stating congressional intent to occupy particular field preempt any state law within same field).
128. See id. (citing Silkwood, 464 U.S. at 248) (declaring state law can be preempted for conflicting with federal law in two ways; see also United States v. Kentucky, 252 F.3d 816, 822 (6th Cir. 2001) (illustrating test for preemption).
129. See Boeing, 2011 WL 1748312, at *9 (identifying field of nuclear safety has traditionally been occupied wholly by federal government).
did not already regulate the matter.}\textsuperscript{130} Under the AEA, a state law cannot “regulate against radiation hazards” or “directly affect[ ] decisions concerning radiological safety regardless of the state legislature’s asserted purpose for the law.”\textsuperscript{131} Because SB 990 regulated nuclear health and safety, the court found the AEA preempted the state statute.\textsuperscript{132} In its analysis, the court examined the expressed purpose and legislative history of SB 990, both of which characterized the law as seeking to assert California’s jurisdiction over federal activity in the field of nuclear safety.\textsuperscript{133}

Additionally, the AEA did not give California the authority to regulate within the area of nuclear safety.\textsuperscript{134} The court recognized that in 1962 the AEC authorized California to “protect public health or to minimize danger to life or property resulting from byproduct, source, or special nuclear material contamination” pursuant to the 1959 amendments to the AEA.\textsuperscript{135} Nonetheless, the court concluded the agreement did not give California authority over federal DOE activities or the activities of the federal government’s prime contractors.\textsuperscript{136} The AEC did not have the power to delegate authority to California over DOE activity, which remained under the sole and exclusive control of a federal agency.\textsuperscript{137} As such, California had no jurisdiction over the DOE’s activities or consequent cleanup procedures.\textsuperscript{138} The court reasoned the DTSC’s claims of authority to regulate the private radiological contamination lacked

\textsuperscript{130} See id. (citing Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 236 (1947)) (presenting test for preemption as to whether subject of state regulation is in any way regulated by federal government).

\textsuperscript{131} See id. (explaining ways in which AEA preempts state law).

\textsuperscript{132} See id. (holding “SB 990 regulates squarely within the preempted field of nuclear health and safety”).

\textsuperscript{133} See id. at *9-10 (identifying language of SB 990 and DTSC’s admitted purpose of SB 990 as protection of environment, public health, and safety, as well as mobilization of cleanup to fullest extent).

\textsuperscript{134} See Boeing, 2011 WL 1748312, at *10-11 (discussing whether AEA cedes authority to state to regulate nuclear safety). A 1959 amendment to the AEA allowed the AEA-created AEC to enter into agreements with states for the purpose of providing them with authority to regulate nuclear safety with respect to certain nuclear materials. Id. at *10.

\textsuperscript{135} Id. at *11 (quoting cessation of authority to California in 1962 Agreement pursuant to AEA).

\textsuperscript{136} See id. (declaring 1962 agreement with California under AEA did not relinquish federal control over DOE research, cleanup of resulting contamination, or activities of DOE’s prime contractors such as Boeing).

\textsuperscript{137} See id. (reasoning authority over DOE activities could not be and was not ceded to California in 1962 agreements).

\textsuperscript{138} See id. (holding only DOE has power to implement cleanup and other safety procedures at its sites and AEC had no ability to cede such authority to California).
validity because the DTSC admitted the vast majority of the contamination stemmed from federal activity and any private contamination was indistinguishable from federal contamination.139

According to the court, the AOCs among the DTSC, the DOE, and NASA did not validate SB 990 for three reasons.140 First, Boeing was not a party to the AOCs; second, the AOCs’ requirements did not match those of SB 990; and third, the AOCs did not hold the force of law.141 Because federal law preempts state law in the field of nuclear safety, the AOCs were nonbinding, unless effectuated by congressional legislation.142 Thus, the district court ruled Congress invalidated SB 990 by explicitly occupying the field of nuclear safety and materials, and ceded no authority to California under the AEA to regulate the same field.143

B. SB 990’s Invalidity Under Intergovernmental Immunity Doctrine

The United States District Court, Central District of California further invalidated SB 990 because it directly regulated and discriminated against a federal contractor in violation of the intergovernmental immunity doctrine.144 The intergovernmental immunity doctrine dictates a state cannot directly regulate the federal government’s operations or property without “clear and unambiguous” congressional authorization.145 This doctrine also applies to federal private contractors, such as Boeing.146 Furthermore, the doctrine includes a proscription on state laws that discriminate,

139. See Boeing, 2011 WL 1748312, at *3, *15 (noting state’s admission that federal and private contamination were inextricably mixed).
140. See id. at *12 (eliminating AOCs as possibly giving California authority to pass SB 990). The court examined the AOCs for any cessation of authority to California by the federal agencies to conduct cleanup of SSFL, but found none. Id. For a discussion of the reasons why the Consent Orders failed to authorize California to pass SB 990, see infra notes 141-143 and accompanying text.
141. See Boeing, 2011 WL 1748312, at *12 (stating only act of Congress can allow states to regulate nuclear materials).
142. See id. (finding need for congressional allowance for state regulation of nuclear safety). “[N]othing other than an act of Congress can open this field to regulation by the [s]tate”. Id.
143. See id. at *15 (invalidating SB 990 for regulating in federally occupied field).
144. See id. at *12 (discussing various prohibitions on state laws under intergovernmental immunity doctrine).
145. See id. at *13 (describing “clear and unambiguous” standard for authorization of direct state regulation of federal activity).
146. See Boeing, 2011 WL 1748312, at *12 (extending limitations on state regulation to activities of federal contractors).
however slightly, against the federal government or its contractors.\textsuperscript{147}

According to the court, the California legislature attempted to directly regulate the DOE, NASA, and Boeing in several ways.\textsuperscript{148} First, SB 990 mandated a particular cleanup procedure for SSFL and imposed strict standards without determining the reasonable future use of the land.\textsuperscript{149} Second, the law expressly prohibited the DOE, NASA, and Boeing from transferring or selling any part of the land at the site until the parties completed the cleanup.\textsuperscript{150} Third, it discriminated against the DOE, NASA, and Boeing by prescribing strict standards for the cleanup procedure that only applied to SSFL and those parties.\textsuperscript{151}

Additionally, the court reasoned that Congress had not clearly and unambiguously authorized SB 990 or any other similar legislation.\textsuperscript{152} The court subsequently rejected the argument that the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the RCRA granted any authority to California or the DTSC to regulate the cleanup efforts at SSFL, which would override the AEA’s limitations on state authority.\textsuperscript{153} Thus, the court concluded SB 990 failed in its entirety under the Supremacy Clause because it regulated and discriminated against the DOE and NASA’s activities as federal agencies and Boeing as a federal contractor.\textsuperscript{154}

V. CRITICAL ANALYSIS

When deciding Boeing, the United States District Court, Central District of California followed a decades-old formula for pre-
empting state action in the field of nuclear safety.\textsuperscript{155} Namely, it affirmed the previously established division of authority between federal and state governments regulating nuclear power.\textsuperscript{156} Although the court’s analysis did not encompass all characteristics of a particular case or all of the general tests for evaluating the validity of state nuclear safety laws, the court would have arrived at the same conclusion if it had included any additional examinations.\textsuperscript{157}

A. Following the Trend of Preemption and Invalidating State Laws

In \textit{Boeing}, the district court reaffirmed the roles of the state and the federal governments, as described in the seminal case of \textit{Pacific Gas}, on the issue of preemption.\textsuperscript{158} A California statute withstood the preemption analysis in \textit{Pacific Gas} because the statute regulated the economics of constructing a nuclear power plant rather than nuclear safety.\textsuperscript{159} Consistent with the \textit{Pacific Gas} precedent, the court in \textit{Boeing} invalidated SB 990 because the AEA preempted the statute’s expressed purpose of regulating nuclear safety.\textsuperscript{160}

The court’s preemption analysis also adhered to other circuit court decisions on various aspects of the AEA’s preemption of state regulation in the nuclear energy field.\textsuperscript{161} First, the court did not dwell on the characteristics of the waste at SSFL, but doing so would

\textsuperscript{155} See supra notes 6-9 and accompanying text for a discussion of the history of the preemption doctrine and its role in nuclear technology regulation.


\textsuperscript{157} See \textit{Boeing}, 2011 WL 1748312, at *15-16 (eliminating potential legal bases for SB 990). The court’s analysis, though primarily focused on the preemption doctrine, notes the mixed contamination at SSFL, but dismisses it and several other factors as validating SB 990. \textit{Id.}

\textsuperscript{158} See id. at *9-10 (holding SB 990 preempted for attempting to regulate nuclear health and safety); see also Pac. Gas & Elec. Co., 461 U.S. at 205 (describing different areas of regulation for which federal government and states are responsible under AEA).

\textsuperscript{159} Compare \textit{Boeing}, 2011 WL 1748312, at *9 (stating purpose of SB 990 was to “protect . . . health and safety and the environment”), with Pac. Gas & Elec. Co., 461 U.S. at 213-16 (finding state law not preempted if it has valid economic, non-safety purpose).

\textsuperscript{160} See \textit{Boeing}, 2011 WL 1748312, at *10 (noting DTSC’s admission of protective purpose of SB 990); see also Pac. Gas & Elec. Co., 461 U.S. at 213-16 (finding economic purpose for state law that concerned costs, rather than safety, of nuclear waste disposal).

not have undermined the preemption analysis.\textsuperscript{162} The court noted that pursuant to RCRA, California's DTSC had the authority to regulate non-radiological, chemical waste.\textsuperscript{163} RCRA prohibits the "treatment, storage, or disposal of hazardous waste . . . without a permit issued by either the . . . [EPA] or an authorized state agency."\textsuperscript{164} RCRA specifically subjects itself to the AEA, however, and acknowledges that its provisions do not apply to any activity or substance covered by the AEA, specifically radioactive or nuclear waste.\textsuperscript{165}

In Boeing, the court followed the Sixth Circuit's conclusion in Kentucky that RCRA expressly excludes "source, special nuclear, and byproduct material," which the AEA exclusively regulates, from the definition of solid waste.\textsuperscript{166} While RCRA permitted California to direct the chemical cleanup at SSFL, the state instead attempted to regulate the radiological cleanup of nuclear materials with SB 990, which was exclusively covered by the AEA.\textsuperscript{167} Using similar reasoning, the court also rejected CERCLA or any other act of Congress as granting such authority.\textsuperscript{168} A clear and unambiguous congressional authorization must exist for a state to regulate federal activity.\textsuperscript{169}

Second, the court in Boeing barely discussed whether the contamination at SSFL consisted of a mixture of both radiological and non-radiological waste.\textsuperscript{170} It likely assumed the waste was mixed due to the diversity of research conducted and the contaminants produced at SSFL; nonetheless, the reasoning in Kentucky would

\textsuperscript{162} See Boeing, 2011 WL 1748312, at *5 (emphasizing SB 990 focused on cleanup of only radiological and chemical contamination at SSFL).

\textsuperscript{163} See id. at *8 (discussing RCRA provisions and role created for states).

\textsuperscript{164} See 42 U.S.C. § 6925 (1996) (describing general provisions of RCRA). RCRA thus allows states to control the handling of hazardous waste, defined by RCRA as solid waste. \textit{Id.}

\textsuperscript{165} See Kentucky, 252 F.3d at 821-25 (evaluating limitations of RCRA provisions).

\textsuperscript{166} See id. at 821-22 (interpreting meaning of solid waste under RCRA).

\textsuperscript{167} See Boeing, 2011 WL 1748312, at *9-10, *14 (eliminating RCRA as giving California authority to regulate federal activity with respect to nuclear safety and cleanup of nuclear sites).

\textsuperscript{168} See id. at *14 (disregarding CERCLA as providing California with authority to regulate radiological decontamination of SSFL).

\textsuperscript{169} See id. (recognizing exception to intergovernmental immunity doctrine when clear and unambiguous congressional approval exists).

\textsuperscript{170} See id. at *16 (noting SB 990 sought to combine risks from chemical and radiological contamination at SSFL in mandating cleanup efforts). The court notes, however, that both federal and private action contaminated SSFL. \textit{Id.} Therefore, "[b]ecause the Supremacy Clause bars the application of SB 990 to the federal contamination, it would be impossible to [combine] the risks for the entire site." \textit{Id.}
still lead to the preemption of SB 990.¹⁷¹ According to the court in Kentucky, states authorized to conduct cleanups under RCRA can only regulate the cleanup of hazardous solid wastes at a site; the DOE, as a federal agency, has the exclusive authority to regulate the radiological cleanup under the AEA, regardless of whether the radiological contamination was separate or part of a waste mixture.¹⁷² Due to the factual similarity with Kentucky, the court in Boeing would likely have reached the same conclusion and maintained the division of authority between the state and federal governments over the different types of contaminants at SSFL.¹⁷³ Interestingly, the court used a similar analysis in Boeing regarding the difference between private and federal waste at SSFL, echoing the mixture examination presented above.¹⁷⁴ In contrast to the Kentucky decision, the majority's discussion in Boeing focused on who was regulating instead of what was regulated; nevertheless, the court still reached a similar result.¹⁷⁵

Third, the district court bolstered its decision in Boeing by affirming states cannot directly regulate the federal government's private contractors, in the same way states cannot regulate federal activities, because such action violates the intergovernmental immunity doctrine.¹⁷⁶ The Supreme Court articulated a similar holding in Goodyear Atomic Corp.¹⁷⁷ The majority in Goodyear Atomic Corp. concluded a federal facility "performing a federal function is shielded from direct state regulation, even though the federal function is carried out by a private contractor."¹⁷⁸

¹⁷¹. See United States v. Kentucky, 252 F.3d 816, 822-24 (6th Cir. 2001) (upholding division of authority between state and federal governments even when waste is mixed).

¹⁷². See id. at 823 (reasoning "DOE has exclusive authority to regulate the radiological component of waste mixtures" while states authorized under RCRA have authority to regulate hazardous portions).

¹⁷³. Compare id. (preempting state permit conditions under AEA), with Boeing, 2011 WL 1748312, at *10 (invalidating state contamination cleanup standards on federal agencies).

¹⁷⁴. See Boeing, 2011 WL 1748312, at *15 (describing impossibility of distinguishing private and federal waste at SSFL because they were inextricably intermixed).

¹⁷⁵. See id. at *15-16 (delineating impossibility of separating private waste from federal waste at SSFL for regulation purposes).

¹⁷⁶. See id. at *12-14 (describing intergovernmental immunity doctrine's prohibition on direct state regulation of federal activity).


¹⁷⁸. See id. at 181 (establishing state cannot directly regulate federal private contractor).
In *Boeing*, the DOE hired Boeing as a private contractor to conduct research at SSFL.\(^{179}\) Essentially, SB 990 purported to regulate a federal activity, despite the fact that a federal agency’s private contractor performed the activity instead of the agency itself.\(^{180}\) Thus, SB 990’s attempt to regulate Boeing’s activities fell directly under the guillotine of the intergovernmental immunity doctrine, consistent with the reasoning presented in *Goodyear Atomic Corp.*.\(^{181}\)

B. Additional Unexamined Factors and Unused Tests

The court’s decision in *Boeing* followed many previous appellate decisions on the matter of preemption.\(^{182}\) The court did not, however, undertake additional examinations as articulated in prior decisions.\(^{183}\) Nonetheless, the court likely would not have upheld SB 990 if it had analyzed the following issues.\(^{184}\)

First, the court failed to note that neither the federal government nor its private contractor, Boeing, still operated SSFL or that it was a decommissioned nuclear testing facility.\(^{185}\) In *Westinghouse Electric*, Westinghouse, L.L.C. argued the AEA only preempted state regulation of nuclear safety at operating facilities.\(^{186}\) The California DTSC did not raise this argument in *Boeing*, so the court did not address it.\(^{187}\) Regardless, such an argument would not have succeeded because, as *Westinghouse Electric* notes, there is “no distinction between the NRC’s exclusive jurisdiction over nuclear safety at

\(^{179}\) See *Boeing*, 2011 WL 1748312, at *2 (outlining Boeing’s role in nuclear research and rocket testing at SSFL).

\(^{180}\) See id. at *12 (extending prohibition on state regulation of federal activity to private federal contractors).

\(^{181}\) See id. at *12-14 (discussing SB 990’s discriminating effect on Boeing). The court proceeded to invalidate SB 990 for regulating the activities of a federal contractor at a federal facility in violation of the Supremacy Clause. Id. at *13.

\(^{182}\) See supra notes 158-181 and accompanying text for a discussion of the court’s *Boeing* decision in comparison with other courts’ analyses of the preemption doctrine.


\(^{184}\) See infra notes 186-208 and accompanying text for a discussion of the additional examinations the court did not undertake in *Boeing*.

\(^{185}\) See generally *Boeing*, 2011 WL 1748312 (failing to discuss status of SSFL).

\(^{186}\) See *Westinghouse Elec.*, 487 F. Supp. 2d at 1086 (noting assertion that NRC’s exclusive jurisdiction may only apply to currently operating facilities).

\(^{187}\) See generally *Boeing*, 2011 WL 1748312 (failing to distinguish application of preemption doctrine between commissioned and decommissioned facilities).
Second, the court in *Boeing* did not examine SB 990’s constitutionality under the Commerce Clause. Instead, the court skipped straight to a preemption and intergovernmental immunity analysis. In *Spellman*, the Ninth Circuit utilized the following test for a Commerce Clause violation, which asks whether the state law: “(1) regulates evenhandedly; (2) accomplishes a legitimate local public purpose; and (3) has only an incidental effect on interstate commerce.”

Applying the *Spellman* test to the current case would illustrate that SB 990 limits its more stringent decontamination standards to SSFL, and thus does not regulate evenhandedly. While SB 990 arguably served a legitimate local public purpose by regulating nuclear decontamination to ensure public safety, it would fail under the third prong of the test because it expressly criminalized the sale of any parcel of SSFL land before the site met the standards of SB 990. Even if SSFL land would not participate in an interstate commercial transaction, SB 990 would still affect interstate commerce if the land was used for agriculture as the California legislature envisioned in *Boeing*.

Certainly, the Commerce Clause argument is more difficult to establish, necessitating a three-pronged analysis of the state law and its relationship to interstate commerce. Accordingly, Boeing relied on the well-established preemption precedent rooted in the

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188. See *Westinghouse Elec.*, 487 F. Supp. 2d at 1086 (applying same preemption standard for decommissioned facility as for facility in operation).
189. See generally *Boeing*, 2011 WL 1748312 (foregoing Commerce Clause examination for preemption analysis).
190. See id. at *15-16 (holding SB 990 violates Supremacy Clause under preemption and intergovernmental immunity doctrines by regulating against federal activity and federal contractor).
192. See *Boeing*, 2011 WL 1748312, at *5 (acknowledging SB 990 applies only to SSFL).
193. See id. at *6 (describing SB 990’s prohibition on sale, lease, or other transfer of SSFL land).
194. See id. at *5 (explaining SB 990’s purpose to remediate SSFL sufficiently enough for agricultural use).
195. See supra notes 189-194 and accompanying text for an elaboration on the Commerce Clause test.
Supremacy Clause by using the AEA. The Commerce Clause would have arguably invalidated SB 990 through an application of the above test, but courts utilize the Commerce Clause analysis less frequently in cases regarding nuclear technology regulation, instead preferring to rely on the well-established preemption doctrine.

Third, the Boeing court failed to acknowledge the direct and substantial test articulated in Manning. The Ninth Circuit incorporated an alternative test for preemption of state laws in Manning, which arose when a state law did not directly regulate nuclear safety. According to the Ninth Circuit, a federal law can preempt a state law even if the state law did not regulate nuclear safety directly; in particular, a federal law could invalidate a state law that has a direct and substantial impact on the decisions of the federal government or its agencies regarding the field of nuclear safety.

In Manning, the direct and substantial test determined the AEA preempted a state law that effectively closed a nuclear facility by preventing the DOE from storing waste at the facility until the site was decontaminated. The direct and substantial test arguably did not apply in Boeing because SB 990 expressly aimed to regulate nuclear safety at the SSFL facility, which automatically invalidated the statute as regulating a federally-occupied field in violation of the Supremacy Clause. Nevertheless, if the Boeing court had applied the direct and substantial test to SB 990's

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197. For a discussion of various courts’ analyses of the preemption doctrine, see supra notes 78-87 and accompanying text.

198. See United States v. Manning, 527 F.3d 828, 839 (9th Cir. 2008) (holding state law was preempted by AEA because it had direct and substantial impact on radiological safety decisions).

199. See id. at 839 (invalidating state law under direct and substantial test when it did not directly regulate nuclear safety); see also English v. Gen. Elec. Co., 496 U.S. 72, 85 (1990) (utilizing direct and substantial test to analyze North Carolina law).

200. See Manning, 527 F.3d at 840 (reasoning AEA can preempt state law even when state law does not have nuclear safety purpose). The Ninth Circuit held the AEA preempted a state law for “directly and substantially impact[ing] the DOE’s decisions on the nationwide management of nuclear waste”. Id.

201. See id. at 831 (describing purposes of state law).

cleanup standards and land transfer prohibition, it would have arrived at a conclusion of preemption.203

The stringent standards of SB 990 mandating a higher land-use standard could influence the choices involved in decontaminating SSFL if the DOE, NASA, and Boeing were forced to abide by the law.204 Specifically, the higher standards of SB 990 could have a direct and substantial impact on the parties' decisions decontaminating the site.205 Though the court did not apply the direct and substantial test to SB 990, its existence could impact future decisions.206 While the California legislature must refrain from passing nuclear technology safety laws, it can still legislate to affect nuclear safety in some way, thereby creating an instance in which courts could possibly use this test.207 The district court's decision to preempt California's SB 990 regulation not only complied with other court decisions on the issue of state law preemption under the Supremacy Clause, but none of the unexamined aspects or alternative tests would have validated SB 990.208

VI. IMPACT

Contemporary public sentiment toward nuclear technology no longer envisions a bright future powered by nuclear energy.209 After various nuclear site accidents and near misses, the skeptical public increasingly opposes nuclear proliferation, and safety concerns now overrule the possibility of nuclear energy as a viable alternative energy source.210 Simultaneously, the federal government loathes abandoning its exclusive control over nuclear safety, so Boeing is no revolutionary decision in this regard.211

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203. See id. at *5-6 (describing SB 990's land use assumption provision and prohibition on sale or transfer of SSFL land until land is fully remediated).
204. See id. (discussing SB 990's stringent requirements to make SSFL safe for subsistence farming).
205. See id. at *5 (contrasting DOE's approval of possible land-use with SB 990's infeasible requirements).
206. See id. at *5, *10 (failing to apply direct and substantial test and noting express purpose of SB 990).
207. See United States v. Manning, 527 F.3d 828, 839 (9th Cir. 2008) (holding state law can be preempted for having direct and substantial impacts on decisions regarding nuclear waste).
208. For an examination of previous decisions on preemption, see supra notes 88-120 and accompanying text.
209. See Maleson, supra note 1, at 632 (discussing disillusionment with nuclear technology in modern era).
210. See id. (emphasizing change in public opinion toward nuclear power).
211. See supra notes 158-207 and accompanying text for a comparison of Boeing with other decisions on the issue of preemption.
In fact, Boeing demonstrates how slow the institutional response, on the judicial, executive, and legislative fronts, can be to a growing social concern.\footnote{212. See Maleson, supra note 1, at 604 (discussing typical delay in institutional response to technological change).} Even in an era disfavoring nuclear technology because of its associated risks, courts have responded to states' anxiety and apprehension by maintaining the status quo.\footnote{213. See id. (noting judicial conservativeness).} At the same time, states may face immediate dangers from nuclear radiation, contamination, or even explosion.\footnote{214. See, e.g., Boeing Co. v. Robinson, No. CV 10-4839-JFW, 2011 WL 1748312, at *2-3 (C.D. Cal. Apr. 26, 2011) (describing contamination at SSFL in California).} Because the AEA preempts state action to ensure nuclear safety, states must wait for the federal government to mobilize cleanup procedures of nuclear sites; Boeing stands as a testament to how ineffective and sluggish those federal efforts can be.\footnote{215. See supra notes 57-44, 53-54 and accompanying text for a description of the federal effort to decontaminate SSFL.} Yet, as Boeing illustrates, the current regulatory regime may endure.\footnote{216. See Boeing, 2011 WL 1748312, at *15-16 (holding state law regulating nuclear decontamination and safety preempted by AEA).}

Additionally, Boeing and the ancestry of cases on the issue of nuclear safety preemption obscure the real crisis.\footnote{217. For a discussion of significant decisions regarding the relationship between nuclear technology and preemption, see supra notes 88-120 and accompanying text.} While states squabble with federal agencies over which has the authority to initiate cleanup efforts at nuclear sites or regulate the storage of volatile radioactive materials, the actual initiation of those efforts and regulations remains unfulfilled.\footnote{218. See Boeing, 2011 WL 1748312, at *5 (sympathizing with California's "unreasonable frustration" with lack of cleanup efforts).} Thus, sites such as SSFL may stand idle for decades, increasingly endangering local citizens, while states and federal agencies decide who should clean up the mess.\footnote{219. See supra notes 40-45 and accompanying text for a recounting of California's frustration with the lack of federal cleanup efforts.} In its mechanical application of the preemption analysis, the district court in Boeing failed to recognize the importance of nuclear waste disposal and decontamination, despite the need to secure nuclear safety for the public.\footnote{220. See Boeing, 2011 WL 1748312, at *10 (invalidating SB 990 for regulating in federally occupied field).}

As the need for alternative energy sources grows, more nuclear power reactors are developed and put into operation, and public
concern over their safety has grudgingly abated.\textsuperscript{221} The world strives for cleaner, more efficient energy sources, and nuclear power may once again become a viable option despite its immense dangers.\textsuperscript{222} Yet, what novel environmental issues will arise with renewed nuclear proliferation and the environmental impact they might have are still unknown.\textsuperscript{223} Therefore, the scheme of nuclear technology regulation may look very different in the future as roles for the federal government and the states potentially change in drastic ways.\textsuperscript{224} \textit{Boeing} still maintains a decades-old philosophy that may no longer apply as strongly in today's world.\textsuperscript{225} Whether future decisions will upend the status quo upheld in \textit{Boeing} remains to be seen.\textsuperscript{226}

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\textsuperscript{221} See Repka & Smith, supra note 9, at 31 (stating more nuclear development is coming in near future).

\textsuperscript{222} See \textit{id.}, (arguing after twenty-five years, there will be increased focus on nuclear power technology).

\textsuperscript{223} See \textit{id.}, at 31-33 (discussing future issues in regulating nuclear technology).

\textsuperscript{224} See \textit{id.}, at 32 (prophesizing continuation of debate on disposal of nuclear waste).

\textsuperscript{225} See supra notes 158-181 and accompanying text for a discussion of the consistency of \textit{Boeing} with previous decisions on preemption.


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