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STATE AUTHORITY AND RESPONSIBILITY IN THE ATOMIC ENERGY FIELD

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AT the present time the federal government exercises what is tantamount to monopolistic control over atomic energy activities.¹ The necessity for this type of federal control is predicated today, as it was in 1942 when atomic energy was first developed in the United States,² upon considerations of national security and public safety.³ It is for these reasons that state governments today are precluded from effective participation in the development and control of atomic energy.⁴

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¹ Until the enactment of the Atomic Energy Act of 1946, 60 Stat. 755, 42 U.S.C. §§ 1801-19 (1958), the federal government exercised its monopolistic control over atomic energy activities by means of the Manhattan Engineer District of the Army Corps of Engineers. With the enactment of the Atomic Energy Act of 1954, 68 Stat. 919, 42 U.S.C. §§ 2011-2281 (1958), this control passed to the Atomic Energy Commission.

² Atomic energy was developed in 1942 in the Argonne National Laboratory at the University of Chicago. See Parker, *The Need For State Atomic Energy Programs In The West*, 29 ROCKY MT. L. REV. 296 (1957).

³ The possibility that the control of atomic weapons could be vested in an international authority also required that the control of this energy, and that major policy decisions with respect thereto, rest solely with federal authorities.

⁴ See Pub. L. No. 86-373, 86th Cong., 1st Sess. 2568 (Sept. 23, 1959), 73 Stat. 688-91 (1959), 42 U.S.C.A. § 2021 (Cumulative Annual Pocket Part, 1959), which amends the Atomic Energy Act of 1954, 68 Stat. 919, 42 U.S.C. §§ 2011-2281 (1958), by adding thereto § 274. This section specifies the extent of and the circumstances under which states may participate in the regulation and control of atomic energy activities. See STAFF OF JOINT CONGRESSIONAL COMM. ON ATOMIC ENERGY, ATOMIC

The Atomic Energy Act of 1954, as originally enacted, virtually ignored the traditional function of state governments with respect to the regulation of industrial enterprise and the protection of the public health and safety. It did, however, permit industrial enterprises to participate in the field of atomic energy as licensees⁵ of the Atomic Energy Commission. Although these enterprises could acquire licenses to construct, own, and operate atomic energy facilities for private purposes, they remained completely subject to the regulation and control of the Atomic Energy Commission as to the essentials for participation in atomic enterprise: the materials, facilities and technical knowledge were obtainable only under Atomic Energy Commission license or permit.⁶ The control was buttressed by the federal government's retention of title to all supplies of special nuclear material.⁷

The 1954 act divides the essential atomic material placed under the Atomic Energy Commission's licensing control into three categories: (1) special nuclear materials,⁸ consisting of uranium 233, 235, and plutonium, the only three materials that can sustain a chain reaction and which, as such, are the fissionable fuels for nuclear reactors; (2) source materials,⁹ consisting of uranium and thorium ores, and the metals and compounds from which special nuclear material are derived; and (3) byproduct materials¹⁰ consisting of all radioactive materials and isotopes produced or resulting from the fission of or irradiation by special nuclear materials in nuclear reactors.

Although the act vests all rights, title, and interests in special nuclear material in the Government, it authorizes the private use and possession of such material under license subject to the payment of a reasonable

ENERGY LEGISLATION THROUGH 85TH CONGRESS, 2D SESSION (Comm. print 1958), which sets forth all prior amendments of the act.

⁵ Private organizations which participated in atomic energy activities functioned for all practical purposes as agents of the federal government. See Krebs & Hamilton, *The Role of the States in Atomic Development*, 21 LAW & CONTEMP. PROB. 132 (1956); Newman, *The Atomic Energy Industry: An Experiment in Hybridization*, 60 YALE L.J. 1263 (1951); Palfrey, *Atomic Energy: A New Experiment in Government-Industry Relations*, 56 COLUM. L. REV. 367 (1956); Tybout, *The Contractor System*, 290 ANNALS 82 (1953).

⁶ See Trowbridge, *Licensing and Regulation of Private Atomic Energy Activities*, 34 TEXAS L. REV. 842, 844 (1956).

⁷ 68 Stat. 919, 42 U.S.C. § 2072 (1958).

⁸ 68 Stat. 929-32, 42 U.S.C. §§ 2071-77 (1958).

⁹ 68 Stat. 932-35, 42 U.S.C. §§ 2091-99 (1958).

¹⁰ 68 Stat. 935, 42 U.S.C. §§ 2111-12 (1958).

charge.¹¹ The Atomic Energy Commission also exercises broad powers over byproducts, since it alone, under appropriate license, can distribute, sell, loan or lease such materials and it can recall such materials from licensees who either fail to observe Atomic Energy Commission safety standards, or who use them in violation of law or regulation.¹² It is to be noted that the definition of byproduct materials covers only reactor-produced sources of radiation. Other sources of radiation, such as radium, naturally occurring radioactive materials, X-ray, fluoroscope machines, and accelerator-produced radioactivity, are not subject to regulatory control by the Atomic Energy Commission.¹³

The 1954 act divides facilities controlled by the Atomic Energy Commission into two categories; production facilities,¹⁴ and utilization facilities¹⁵ using the special nuclear materials uranium 233, 235, and plutonium. These facilities include all types of atomic reactors: power, research and test, and critical assemblies constructed for the study of chain reactions. They also include isotope separation plants which produce uranium enriched in U235 and chemical processing plants which produce U233 and plutonium.¹⁶ The act makes the construction, manufacture, possession, transfer or receipt of either type of facility without license illegal, and licenses issued for these purposes impose a number of specific restrictions and require compliance with the act and the regulations thereunder.

To complete the Commission's control over private atomic energy activity, information necessary to industry's participation is obtainable only through the Atomic Energy Commission's access program and its system of clearances.¹⁷

¹¹ The 1954 act recognized private ownership of source materials but title thereto was transferable only while they remain in the place where originally found. 68 Stat. 932, 42 U.S.C. § 2092 (1958).

¹² 68 Stat. 935, 42 U.S.C. § 2111 (1958).

¹³ 68 Stat. 922, 42 U.S.C. § 2014(e) (1958).

¹⁴ 68 Stat. 923, 928, 929, 938, 42 U.S.C. §§ 2014, 2061-64, 2136 (1958).

¹⁵ 68 Stat. 924, 938, 42 U.S.C. §§ 2014, 2136 (1958).

¹⁶ These facilities do not include those fabricating fuel elements. Logically they should have, as this operation, if performed negligently, could produce a critical mass. See Cavers, *Legislative Readjustment in Federal and State Regulatory Powers Over Atomic Energy*, 46 CALIF. L. REV. 22 (1958).

¹⁷ 68 Stat. 940-43, 42 U.S.C. §§ 2161-66 (1958). The Atomic Energy Commission is empowered to classify and declassify atomic energy information, and restricted information is classified as either confidential, secret, or top secret. Only the first two classes are made available for use by industry engaged in private atomic energy activities.

I

STATE PARTICIPATION IN THE ATOMIC ENERGY PROGRAM UNDER THE
ATOMIC ENERGY ACT OF 1954

The Atomic Energy Act of 1954, as originally enacted, granted no authority to the states to control atomic activities.

Prior to the enactment of Section 274 of the Atomic Energy Act in September 1959, only two provisions of the act referred to the states. Neither granted to the states any substantive authority to regulate atomic energy activities. Section 271 provides that the act is not to be construed as impairing the authority of federal, state, or local agencies with respect to the generation, sale or transmission of electrical power.¹⁸ Section 161(f),¹⁹ authorizes the Commission to utilize the services of personnel of any state or local government to perform such functions on its behalf as it desires.

The states were concerned with the probability that the act was intended to reserve to the federal government sole control and regulatory authority over all aspects of private atomic energy activities, including matters pertaining to the health and safety of employees and of the general public. They were particularly disturbed by the thought that with respect to radiation sources licensed by the Atomic Energy Commission²⁰ they could exercise no authority over such matters as the establishment of commercial atomic facilities within their borders, the situs of such facilities, the handling, storage, and the transportation of source, byproduct, and special nuclear materials, or the manner and extent of the discharge of radioactive wastes. Under this legislation even the applicability to commercial atomic ventures of local building and industrial codes for the protection of employees was not free from doubt. These matters were of course of vital concern to the states.²¹

¹⁸ 73 Stat. 688 (1959), 42 U.S.C.A. § 2021 (Supp., 1959).

¹⁹ 68 Stat. 949, 42 U.S.C. § 2201(f) (1958).

²⁰ On February 28, 1957, the Atomic Energy Commission promulgated detailed Standards for Protection against Radiation, 22 Fed. Reg. 548-54 (1957), amending 10 C.F.R. part 20, which apply to persons possessing source, special nuclear, or byproduct material under a general or specific license from the Commission. A summary of the Commission's regulatory program appears in a Joint Committee Report on Atomic Energy, *Selected Materials on Federal-State Cooperation In The Atomic Energy Field*, 86th Cong., 1st Sess., 39-50 (1959) [hereinafter cited as *1959 Selected Materials*].

²¹ See Dunlavey, *Governmental Regulation of Atomic Industry*, 105 U. PA. L. REV. 295, 343 (1957); McCULLOUGH, MILLS & TELLER, *THE SAFETY OF NUCLEAR REACTORS* 4 (1955).

Moreover, they were matters over which the states had traditionally exercised almost plenary powers of regulation pursuant to the provisions of the tenth amendment to the United States Constitution, which reserves to the states powers not delegated to the United States by the Constitution, nor prohibited by it to the states.

The probability that Congress had intended to pre-empt for the federal government all aspects of atomic energy activities, including their control and regulation,²² presented difficult questions of statutory construction and, if pre-emption by the federal government were contemplated, an intricate constitutional issue. These questions of statutory construction have been rendered moot by section 274 of the 1954 act.²³ The constitutionality of the act, however, remains undetermined. In view of the conciliating provisions of section 274 of the act and the serious and conservative manner in which the Atomic Energy Com-

The possibility exists that radioactive material may be widely scattered due to leakage or to the explosion of a nuclear reactor. A runaway in which three servicemen were killed, occurred at the National Reactor Testing Station near Idaho Falls, Idaho, on January 3, 1961. The deaths were caused by the explosion of a prototype of a small portable nuclear reactor intended for use by the Army as a source of power in remote areas. *Washington Evening Star*, Jan. 9, 1961, p. A-14, col. 3. For a list of accidents involving radiation in the atomic energy industry see *Hearings Before the Joint Committee on Atomic Energy on Development, Growth and State of Atomic Energy Industry*, 86th Cong., 2d Sess., 466 (1960) [hereinafter cited as *1960 Hearings on State of Atomic Energy Industry*]. Even more dangerous is the cumulative effect of exposure to excessive radiation, the damaging effects of which may not be known for many years. See *Hearings Before the Joint Committee on Atomic Energy on Federal State Relationships In The Atomic Energy Field*, 86th Cong., 1st Sess. 7-8 (1959) [hereinafter cited as *1959 Hearings*] and *Summary-Analysis of Hearings before the Special Subcommittee on Radiation of the Joint Committee on Atomic Energy, May 24, 25, 26, 31 and on June 1, 2 and 3, 1960, on Radiation Protection Criteria and Standards: Their Basis and Use*, 86th Cong., 2d Sess. (1960) [hereinafter cited as *1960 Report of Special Subcommittee on Radiation*].

²² Such an intent was to be inferred from section fifty-three which authorizes the Atomic Energy Commission to "establish by rule, minimum criteria for the issuance of special or general licenses" for special and source material. 68 Stat. 921, 42 U.S.C. §§ 2073(b), 2093(b) (1958). The declaration of policy, the supporting findings, and the statement of purpose set forth in the 1954 act confirmed this intent. 68 Stat. 921, 42 U.S.C. §§ 2011, 2012 (1958).

²³ See *1959 Hearings*, *supra* note 21, at 34, 300-16. For a full discussion of the question of statutory construction under the 1954 act, see Krebs & Hamilton, *The Role of the States in Atomic Development*, 21 *LAW & CONTEMP. PROB.* 182, 199 (1956); *1959 Selected Materials*, *supra* note 20, at 3.

²⁴ The caution with which the Atomic Energy Commission examines matters relating to the public health and safety is reflected by its recent decision *In the Matter of Industrial Waste Disposal Corp.*, Docket No. 27-9, May 29, 1959, 2 CCH ATOMIC

mission exercises its responsibilities,²⁴ it is unlikely that its constitutionality will be seriously contested.

II

STATE MEASURES TO CONTROL RADIATION ACTIVITIES

Prior to the enactment of Section 274 of the Atomic Energy Act of 1954, many states participated in varying degrees in the peaceful development of atomic energy. The states regulated and controlled sources of radiation not encompassed by the 1954 act. They also regulated health and safety hazards associated with X-rays, fluoroscopic machines, radio-isotopes produced in particle accelerators, and naturally occurring radioactive materials such as radium, radon, polonium, and other radioactive ores prior to their removal from their natural deposit sites.²⁵ These sources far outnumber those licensed and regulated by the federal government. The regulations of the Commission today apply only to some 5 per cent of the total atomic radiation sources, while 95 per cent is produced by radiation sources under state control.²⁶ The importance of state regulation of radiation sources is evidenced by the fact that without any enlargement of state authority over such sources, an indi-

ENERGY REP. ¶ 11, at 462.01, 462.02, 462.03 (1960). In May 1959, an Atomic Energy Commission Hearing Examiner rendered an intermediate decision authorizing a Houston, Texas, corporation to store packaged low-level radioactive wastes and to dispose of them in the Gulf of Mexico in 1,000 fathoms when encased in drums and concrete. Upon exceptions and after oral argument the Commission on June 22, 1960, approved the license for the storage of waste but remanded the case for further testimony concerning the containers to be used to dispose of it even though the Commission recognized that the testimony could support a conclusion that, even if such a container ruptured, no unreasonable hazard to human and animal life would result. Commissioner Floberg considered the decision as being based upon the "eagerness of the Commission to allay all anxiety, however unreasonable, unfounded, and scientifically unsound of the residents of those areas with regard to safety."

As to the possibility that the constitutionality of the act will be questioned see the petition of Harris County v. United States and the AEC, 292 F.2d 370 (1961), for review of the Commission opinions and final order in *In the Matter of Industrial Waste Disposal Corporation*. Although the petition states that "No contention is being made . . . that Congress does not have the authority to delegate to the . . . Commission the power to license . . . activities" to collect and dispose of waste material which has been exposed to radiation, it nevertheless asserts that the "power of determining who and under what conditions the type of waste to be collected and stored in Harris county . . . Texas . . . are powers that belong to the State of Texas and its political subdivisions" under the tenth amendment to the Constitution.

²⁵ The states also enforced local industrial safety regulations with respect to Atomic Energy sources licensed by the federal government.

²⁶ 1959 *Hearings* 14.

vidual generally will receive the greater part of his total radiation exposure from sources subject to state regulation.²⁷

Prior to the enactment of Section 274 of the Atomic Energy Act, some twenty-two states had also participated in an agency capacity in the health and safety regulation of radiation sources which are subject to federal control under the act.²⁸

Confronted with the certainty that they would in the immediate future be permitted, or perhaps even required, to assume an ever expanding responsibility for the enforcement of health and safety regulations in the peaceful development of atomic energy, particularly that of radiation, a majority of the states undertook measures necessary to acquire and develop the technical knowledge and experience necessary to an undertaking of responsibilities of such serious import. They made extensive studies to consider what internal administrative reorganization would be required to cope with the new problems of atomic energy. They also undertook the complicated task of balancing the state's interest in attracting industrial atomic activities within their borders with that of providing adequate health and safety protection for their citizens.

Prior to the enactment of Section 274 of the Atomic Energy Act of 1954, the states, in the face of considerable doubt as to their authority to regulate activities licensed by the Atomic Energy Commission, took or contemplated regulatory action with respect to such activities.²⁹ As early as May 1959, twelve states had adopted broad radiation protection regulations which were applicable to all radiation activities within the state³⁰ and at least eighteen states had enacted legislation which either authorized or directed the adoption of radiation protection regulations. These comprehensive radiation protection regulations contained no provisions which were significantly different from the radiation levels or administrative provisions which had been recommended by the National Committee on Radiation Protection³¹ or those set forth in the Atomic

²⁷ See 1960 *Report of the Special Subcommittee on Radiation*, *supra* note 21.

²⁸ Statement of Mr. Nelson, Director, Division of Inspection, Atomic Energy Commission, 1959 *Hearings*, *supra* note 21, at 98.

²⁹ At first state attention was directed mostly to the safety of workers who handled radioactive materials or who were exposed to sources of radiation. The usual type of industrial hazards, such as exits, entrances, lighting, elevators, ventilation, and wash-rooms associated with production and utilization facilities had always remained under state control. See Dietz & Harris, *How Shall California Government Meet the Challenge of Atomic Energy?*, 8 *HASTINGS L.J.* 199, 122 (1957).

³⁰ See 1 CCH *ATOMIC ENERGY REP.* ¶ 2505 (1957), ¶ 4212 (1959), and 1960 *Report of the Special Subcommittee on Radiation*, *supra* note 21, at 43.

³¹ A Suggested State Radiation Protection Act, NBS *HANDBOOK* 61 app. A 27-35

Energy Commission's basic radiation regulations.³² Most of the state legislation contains no exemption for federally controlled activities and they are broadly applicable without exemption to licensees of the Commission.³³

At least eighteen states require registration of all radiation activities. The regulations of one state, Minnesota, specifically provide for the licensing of reactors and other major nuclear facilities. As to these matters, Minnesota requires that a complete hazard evaluation be submitted prior to the construction of the facility. Thereafter, the facility cannot be operated without a license from the state authorities.³⁴

Little attempt was made, however, to assess the validity of radiation standards and regulations which overlapped and which in some respects were incompatible with regulations established by the Commission for application to its licensees and contractors. States were not overly concerned with this incompatibility because they were convinced that Congress would soon redefine the respective spheres of the federal and state governments in the control and regulation of atomic energy activities and would greatly expand the state's authority over them.³⁵

As a practical matter the states did not attempt to subject activities licensed by the Commission to their comprehensive radiation regulation. Generally, no action to that end was possible, for the states had

(1955), reproduced in 1959 *Selected Materials*, *supra* note 20. Pennsylvania and Texas adopted the comprehensive regulations suggested by the NCRP. Penn. Dept. of Health Reg. 433; Texas Dept. of Health Regulations on Radiation Exposure.

³³ 10 C.F.R. part 20, "Standards for Protection Against Radiation" (1957). There is a noticeable tendency, however, on the part of states to adopt regulations which are patterned after those of the Commission.

³⁴ 1959 *Hearings*, *supra* note 21, at 129. One state provided exemption for federal contractors and seven states provided an exemption for transportation activities licensed by the Commission. The status as of December 1, 1959, of significant state radiation control is summarized in Office, Atomic Development, New York, Atomic Development Plan for the State of New York 27-28 (1959).

³⁵ Minnesota State Board of Health, Ionizing Radiation Regulation 1158. There would appear to be no objection to a requirement that all sources of radiation be registered with a state agency if it is made clear that registration does not imply approval of the activity.

³⁶ The questions left for subsequent determination by Congress included the authority of the states to formulate standards for preventing and controlling hazards arising out of atomic energy activities by the Commission or its licensees; the extent, if any, that the radiation standards utilized by the Commission could be modified or supplemented by the states; the authority of the states to impose licensing requirements upon Commission controlled radiation sources; and the enforcement techniques and sanctions to which the states could resort in the regulation of atomic energy activities. These queries were in large part answered by Section 274 of the Atomic Energy Act.

neither the personnel nor the experience required for this purpose. These factors have held federal-state radiation control conflicts to a minimum.

In this connection, it is to be noted that prior to the 1959 amendment of the act, the Commission had studiously avoided asserting or stressing federal supremacy as to these issues and had emphasized the necessity for close federal-state cooperation with respect to these matters.³⁶

III

STATE ATOMIC ENERGY PROGRAMS—PROPOSED PLANS

The advent of atomic energy activities forced the states to thoroughly examine the impact which such activities would have upon each area of state function and to determine the need for new state regulatory and promotional activities of types and in areas not previously contemplated. They considered the reorganization of existing agencies; the creation of new agencies to coordinate internal, interstate, and regional interests; and the development of methods by which state interests could be integrated with the federal atomic energy program. Promotional and educational activities were also given extensive consideration, as it was certain that industry in determining plant location would consider and weigh a state's atomic energy regulations, its tax structure, labor markets, public sentiment and opinion, workmen's compensation acts, insurance requirements, tort liability and other such matters. A failure to develop a considered and comprehensive approach to these matters would seriously jeopardize a state's opportunity for active participation in atomic energy activities.

The chaos which might result, absent an orderly development of atomic energy activities, was first recognized by the New England states. In February of 1954, the New England Governors' Conference appointed a committee³⁷ to study the area's potential for atomic energy development and the opportunities and responsibilities which state governments, industries, and educational institutions would have with respect

³⁶ See Remarks of Mr. Lowenstein, Office of the General Counsel, Atomic Energy Commission, before the Atoms for Peace Conference in Oklahoma City, Oklahoma, April 16, 1956, reproduced in 1 CCH ATOMIC ENERGY REP. ¶ 4042; *cf.*, views of Senator Clinton P. Anderson, former Chairman of the Joint Committee on Atomic Energy expressed in a letter to the Chairman of the Texas Committee on Atomic Energy, dated June 11, 1956, reproduced in part in Parker, *The Need For State Atomic Energy Programs In The West*, 29 ROCKY MT. L. REV. 296, 324 (1957).

³⁷ See NEW ENGLAND COMMITTEE ON ATOMIC ENERGY, ATOMIC ENERGY AND NEW ENGLAND 59 (1955).

to atomic energy activities. This committee's final report proposed a Model State Act for Coordinating, Developing and Regulating Activities Relating to the Peaceful Uses of Atomic Energy.

The model act requires each state, department, and agency to determine what changes in the laws and regulations administered by it would be required to enable it to cope with atomic energy activities and to recommend the enactment of any necessary laws and regulations. It authorizes the governor to appoint an individual to coordinate the state's atomic industrial development and the state's atomic activities with like activities of other states and with the policies and regulations of the Atomic Energy Commission. State departments and agencies are required to keep the coordinator fully informed regarding their atomic energy activities and, as a general rule, no regulation or amendment to a regulation applying specifically to atomic energy which any department or agency proposes to issue, is to become effective until the coordinator has expressed his views thereon.

This plan preserves the authority of existing state agencies and extends it where necessary to apply to atomic activities. However, the model act's effectiveness depends largely upon the coordinator's powers of persuasion, since he has no enforcement powers and no authority to compel agencies to adopt or refrain from adopting any particular policy or practice. The adequacy of such a procedure for performing complex administrative functions is doubtful.³⁸

A second plan of state administrative organization utilizing existing agency authority seeks to attain uniformity and to avoid duplication through cooperating committees which informally exchange ideas. Under this plan each agency is responsible for preparing and promulgating the necessary regulations and each is empowered to issue the requisite orders to compel compliance in its own jurisdictional field. The elimination of overlapping jurisdiction and conflicting regulations by such informal cooperative means can at best be only partially successful. Furthermore, this plan requires each of the several agencies to obtain the services of persons properly trained to deal with radiation health and safety problems, a troublesome and expensive requirement since such personnel are in short supply. Although this scheme of administrative organization preserves existing jurisdictional lines and thus is likely to

³⁸ See STASON, ESTEP & PIERCE, *STATE REGULATION OF ATOMIC ENERGY* 109-10 (1956). Although the coordinator has no enforcement powers, he would be able to exercise considerable influence. His efforts would in large part be of a "public relations" nature.

be more acceptable to existing state administrative authorities, it is cumbersome, inefficient and ineffectual.³⁹

A third approach is that proposed by the NCRP in December 1955.⁴⁰ The proposed NCRP act vests whatever authority existing state agencies might have with respect to radiation protection in an entirely new radiation control agency with vast and exclusive jurisdiction.⁴¹ The agency is granted broad rule-making power to control the hazards associated with radiation, including waste disposal, exposure limits, adequacy of design of radiation sources and the making of inspections. It is also charged with extensive research and information duties⁴² and is to advise and cooperate with other state agencies, the federal government, and other groups. More important, the agency is to devise, modify, repeal, promulgate, and enforce rules and regulations necessary to implement or effectuate the powers and duties of the agency under the act,⁴³ to issue, modify, or revoke orders prohibiting or abating the discharge of radioactive material or waste into the ground, air, or waters of the state,⁴⁴ to inspect radiation sources, shieldings, and immediate surroundings;⁴⁵ and it is to require the registration of all persons who produce radiation or who produce, use, store, or dispose of radioactive materials, or who alter their activities with respect to a previous use.⁴⁶

The NCRP is emphatic that substantive regulations such as storage and disposal standards and regulations, radiation exposure limits, protective devices, personnel monitoring requirements, and labeling requirements, are to be promulgated by the agency in the form of regulations, not as a part of the suggested Radiation Protection Act or otherwise spelled out by statute.⁴⁷ Substantive matters such as these, which are based on highly scientific and technical considerations wholly foreign

³⁹ This plan was formerly in operation in the State of New York and it resulted in two comprehensive health and safety codes: one issued by New York Department of Health and the other by the New York State Department of Labor.

⁴⁰ A Suggested State Radiation Protection Act, NBS HANDBOOK 61 app. A 27-35 (1955).

⁴¹ *Id.* § 3. NBS HANDBOOK 61 indicates that the new agency could also be integrated into an existing agency. *Id.* at 13.

⁴² *Id.* § 4.

⁴³ *Id.* § 4(g).

⁴⁴ *Id.* § 4(h).

⁴⁵ *Id.* § 4(i).

⁴⁶ *Id.* § 5. Other provisions of the act are concerned with matters such as proceedings before the agency, hearings (§ 6), inspections, maintenance of records (§ 10), and penalties, judicial review and injunctions (§§ 11-12).

⁴⁷ *Id.* § 3.

to the average lawmaker, can be determined properly only by agency experts operating under broad rule-making power. As scientific information on exposure limits is ever-expanding, it would be virtually impossible to keep substantive regulations abreast of advances by the cumbersome legislative amendment process.⁴⁸

This manner of centralizing radiation authority would not disturb the authority of existing state agencies with respect to other atomic energy areas such as workmen's compensation, insurance, public utility regulation, education, and agricultural research.⁴⁹ The advantages of centralization in the radiation field are effective and uniform standards, inspection, registration, and policing and the enforcement that it permits. In view of the seriousness of the radiation hazard and the scarcity of qualified radiation health experts, a legal structure patterned after the NCRP act is a sound approach to the problem.⁵⁰

A fourth plan creates a specialized rule-making agency.⁵¹ Under this plan atomic energy functions are divided into two categories: first, rule-making in the atomic regulatory field and second, inspection and enforcement, each function being vested in the hands of a separate administrative organization. Since the prescribing and promulgation of rules and regulations in the atomic energy field involve comprehensive and technical knowledge, these tasks are delegated to a specially constituted body of experts selected on the basis of knowledge and skill in working out rules to protect employees and the general public from radiation injuries. The enforcement of such regulations, however, is left to agencies which already exercise jurisdiction over specified areas of industrial activities. This plan eliminates the possibilities of inconsistency and inadequacy which exist under a multiple rule-making plan and minimizes the financial impact and the number of inspection visits received each year by atomic energy industry through its utilization of existing agencies and personnel for inspection and enforcement purposes. Under this plan, the inspectors of the existing agencies would

⁴⁸ *Id.* at 3. This act is now in force in only one state, South Dakota. S.D. Sess. Laws 1957, ch. 122.

⁴⁹ Parker, *The Need For State Atomic Energy Programs In The West*, 29 ROCKY MOUNT. L. REV. 296, 358 (1957).

⁵⁰ See STASON, ESTEP & PIERCE, *ATOMS AND THE LAW* 1078-79 (1959); *cf.*, summary based on remarks by Mr. Hydeman and Mr. Berman, Co-directors, Atomic Energy Research Project, Univ. of Michigan Law School before the Joint Committee on Atomic Energy, 1959 *Selected Materials*, *supra* note 20, at 196-97. The NCRP plan is contentious because it alters existing lines of authority.

⁵¹ *Id.* at 1079.

not need to possess high technical qualifications in the atomic energy field to apply the rules of thumb and mechanically determine measurements which had been developed by the rule-making agency. This plan is sound and would not disturb the interests of existing agencies.⁵²

The Council of State Governments has recently published a Model State Radiation Control Act⁵³ which was drafted in the light of the provisions of Section 274 of the Atomic Energy Act and the criteria proposed by the Commission for the conclusion of atomic energy agreements between the Commission and the states.⁵⁴ The main purposes of this act are to establish a radiation control system which is "compatible with that of the federal government and those of other states" and to establish a program for federal-state cooperation in the control of radiation hazards.⁵⁵ This model act does not envisage nor require any major modification in the administrative structure which many states now utilize to regulate atomic energy activities. It provides for or recognizes three concepts or forms of administrative organizations to regulate atomic energy activities, one of which should satisfy the needs, legal requirements and the organizational pattern of any state: the coordinator concept (an adoption of the concept espoused by the Model New England Act); the Radiation Control Agency concept (an adoption of the concept contained in the Model NCRP Act); and the Commission on Radiation Protection concept (an adoption of a proposal suggested by the American Public Health Association).

The Commission on Radiation Protection approach would vest in a commission sole authority to formulate and promulgate radiation rules and regulations subsequent to formal hearings. Such a commission would be an arm of the health department and would be composed of representatives of state departments which are concerned with the control of ionizing radiation.

The regulatory authority of this model act extends to all sources of ionizing radiation and, as such, to sources as to which the federal government might in the future desire to discontinue its regulatory

⁵² *Id.*, at 1078-81.

⁵³ Approved by the Committee of State Officials on Suggested State Legislation of the Council of State Governments, August 25, 1960.

⁵⁴ Proposed Criteria for Guidance of States and the Atomic Energy Commission in the Discontinuance of Atomic Energy Commission Authority Over Byproduct, Source and Special Nuclear Materials in Less Than a Critical Mass and the Assumption Thereof by States Through Agreements. [Hereinafter cited as the Proposed Atomic Energy Commission Criteria.]

⁵⁵ MODEL STATE RADIATION CONTROL ACT §§ 2, 3.

responsibilities. It provides as well for the licensing and registration of sources of ionizing radiation. It requires the specific licensing of special nuclear, source, and byproduct materials and certain other radioactive materials which because of their potential hazard might require pre-evaluation of the user and the use; and contemplates, for less hazardous materials, a general license for which no pre-evaluation would be required but which could be made subject to registration and other state regulation. It authorizes the state regulatory agency to recognize a license granted by another state or the federal government; provides for inspection of radiation sources; the keeping of records, including those reflecting the cumulative radiation exposure dosage of all persons who work with radiation sources in the state; empowers the governor of a state to conclude agreements with the Atomic Energy Commission for the discontinuance of certain federal regulatory responsibilities and the assumption of inspection responsibilities; permits participation in training programs established by the federal government, other states and interstate agencies; provides for hearings in connection with proceedings under the licensing program or to determine compliance with the rules and regulations of the agency concerned; and establishes enforcement devices such as injunction, seizure, the impounding of materials, and other penalties to insure compliance with the state's regulatory program.

The provisions of this model act insure a proper centralization of authority over state atomic energy activities⁵⁶ and compatibility of state radiation standards with those of the Atomic Energy Commission.⁵⁷

As of the present time there are still states which have done nothing more than to establish by statute or by executive action, commissions or councils to study the potential and existing problems in atomic energy from the standpoint of responsibility and interests of the states concerned.⁵⁸ A few states have done nothing more than to initiate studies by existing state agencies which have had experience in the general areas concerned.⁵⁹

⁵⁶ At least thirteen states have created an agency for this purpose. *1960 Report of the Special Subcommittee on Radiation, supra* note 21, at 43.

⁵⁷ This model act also provides for other matters which are highly desirable in state atomic energy programs. Unfortunately, it does not require that a cumulative radiation dosage record, including the radiation received from machine sources, be kept for all persons.

⁵⁸ South Carolina and Virginia.

⁵⁹ 1 CCH ATOMIC ENERGY REP. ¶ 8501 (1957).

IV

AMENDMENT OF THE ATOMIC ENERGY ACT OF 1954 WITH RESPECT
TO STATE PARTICIPATION IN ATOMIC ENERGY ACTIVITIES*Background*

From the date of the enactment of the Atomic Energy Act of 1954, the states have earnestly sought from the federal government a definitive statement or legislation which would define precisely the extent of federal and state jurisdiction over industrial activities in the atomic energy field. The extent of the regulatory authority of the states, if any, over important matters such as reactor design, radiological safety and reactor operation, byproducts, transportation of radioactive materials, waste disposal, licensing and inspection of nuclear facilities, and location of nuclear facilities were all matters of vital concern to the states. As the states have increased their technological ability and experience, they have increased their insistence that they be permitted to exercise regulatory powers over atomic activities to a degree coextensive with their technical capabilities.⁶⁰ As noted before, there are only three areas of atomic energy activities over which state authority and responsibility appear to be fairly clear. They are industrial safety, public utilities, and the control of radiation sources not covered by the 1954 act.⁶¹

The Problem of Pre-emption

The necessity of resolving the doubt as to whether Congress had "pre-empted the field" of atomic energy activity by enacting the Atomic Energy Act of 1954 was manifest, and by 1957, Congress was forced to face the task of clarifying and delineating the respective areas of responsibility in this field between the federal and state governments.⁶² This difficult task required an evaluation and determination of the feasibility of placing exclusive responsibility in either the federal or

⁶⁰ Testimony of Mr. William A. McAdams, Chamber of Commerce, 1959 *Hearings*, *supra* note 21, at 373-85.

⁶¹ Difficult problems however did exist with respect to the applicability of regulations dealing with zoning, building permits, sanitation, fire exits, elevators, boilers, plumbing and electrical equipment, to private users, and nuclear energy or radiation sources licensed by the Atomic Energy Commission. *Id.* at 118, 298.

⁶² The question of state regulation had been raised most directly by Minnesota, which had adopted radiation regulations subjecting nuclear reactors to licensing requirements. This regulation squarely raised the constitutional question as to whether the federal government had "pre-empted the field."

state governments; providing for concurrent responsibility, or of specifying areas in which the federal and state government each would have exclusive responsibilities over atomic energy activities. Questions of federal assistance to the states, the method and time of transfer of responsibilities to the states, and whether Atomic Energy Commission contractors should continue to be exempt from state regulation, also required resolution in the light of recommendations made by numerous governmental and non-governmental agencies.⁶³

In 1957, the Atomic Energy Commission proposed a bill which would have authorized a concurrent enforcement by the states of radiation safety standards which were "not in conflict" with Atomic Energy Commission standards. The bill, subject to certain exceptions, permitted dual regulation by both the federal and state governments of activities involving special nuclear, source, and byproduct material, and production and utilization facilities for protection against radiation hazards.⁶⁴

By 1959, however, the Atomic Energy Commission had reconsidered this proposed bill, and on March 5, 1959, it proposed a new bill which discarded the concept of "dual jurisdiction." This proposed bill set up procedures and criteria under which the Commission could "turn over" to states, as they became competent, certain defined areas of regulatory jurisdiction. Areas as to which interstate, national, and international considerations were paramount and areas where "technical safety considerations" were of such complexity that it was "not likely that any state would be prepared to deal with them during the foreseeable future," were excluded.⁶⁵

In May 1959, the Atomic Energy Commission submitted a revision of this proposed bill which, as later further revised, became Section 274

⁶³ Recommendations of the Joint Federal-State Action Committee appointed by the Governors of the forty-eight states and the President; Study prepared for the Southern Governors' Regional Advisory Council on Nuclear Energy in 1958 for consideration by sixteen Southern states entitled, "The Feasibility of an Atomic Energy Compact for the Southern States," excerpts of which appear in 1959 *Selected Materials*, *supra* note 20, at 346-59. Resolution No. 147 adopted by the American Federation of Labor—Congress of Industrial Organizations (AFL-CIO) at its December 1957 convention.

⁶⁴ 1959 *Selected Materials*, *supra* note 20, at 18-24. It precludes, however, the states from licensing activities licensed by the Commission and the application of state radiation standards to facilities operated by the Commission or under Commission contract.

⁶⁵ See letter from Mr. A. R. Luedecke, General Manager, Atomic Energy Commission to Chairman, Joint Congressional Committee on Atomic Energy, March 5, 1959, reprinted in 1959 *Selected Materials*, *supra* note 20, at 25-26.

of the Atomic Energy Act of 1954.⁶⁶ The Commission in submitting its new draft bill stated that it would continue its study to ascertain whether further legislation should be enacted authorizing the Commission to "withdraw from some limited portion of its present regulatory jurisdiction for the radiation protection of the public health and safety." The draft bill noted that the competence of the states to deal with radiation protection was not the sole criteria for deciding the scope of the responsibility that should be entrusted to them, the more basic question being the extent to which federal control was required in the radiation health and safety fields due to interstate, national and international atomic energy problems.⁶⁷ The Commission concluded that for the present any turning over to the states of sole regulatory responsibility for any of the areas covered by the 1954 act was premature.⁶⁸

*Provisions of P.L. 86-373, "An Act to Amend The Atomic Energy Act of 1954 With Respect to Cooperation With States"*⁶⁹

The 1954 act was amended on September 23, 1959, by adding "Section 274. Cooperation With States." This section clarifies the responsibilities of the states and the Commission with respect to the regulation of byproduct, source, and special nuclear material; provides a framework for cooperation between the states and the Commission with respect to the control of radiation hazards incident to the use of such materials; establishes procedures and criteria for the discontinuance of certain of the Commission's regulatory responsibilities with respect to byproduct, source, and special nuclear materials and the assumption thereof by the states; and provides for the coordination of federal and state radiation standards.

Section 274(b) authorizes the Commission to enter into agreements with the governor of any state to discontinue for the duration of any such agreement the regulatory authority of the Commission with respect

⁶⁶ 1959 *Hearings*, *supra* note 21, at 293.

⁶⁷ The areas to be reserved for federal control would include the construction and operation of nuclear reactors, the handling of nuclear fuels and disposal of reactor wastes, and the use of special nuclear material in quantities which are sufficient to form a critical mass. It would also continue federal control over radioactive disposal of materials into oceans and disposal of other high level radioactive materials. See 1959 *Hearings*, *supra* note 21, at 291.

⁶⁸ Letter from Mr. A. R. Luedecke, General Manager, Atomic Energy Commission to Chairman, Joint Congressional Committee on Atomic Energy, May 13, 1959. *Id.* at 293-94.

⁶⁹ 73 Stat. 688 (1959), 42 U.S.C. § 2021 (Supp. II, 1961).

to any one or more of the following materials; subject, however, to important exceptions specifically itemized in the act:

- a. Byproduct materials;
- b. Source materials; and
- c. Special nuclear materials in quantities not sufficient to form a critical mass.

These areas encompass more than ninety-five per cent of the Commission's present regulatory activities. Quantities of special nuclear material which might present hazards of accidental criticality are excluded due to the difficult technical problems and the acute shortage of experienced specialists in the field. As a consequence of the exclusion of such quantities, activities such as the processing of special nuclear material, fabrication of fuel elements and similar activities remained subject to the licensing and other regulatory requirements of the Commission.

Section 274(c), after providing that no agreement concluded with the states can be considered as divesting the Atomic Energy Commission of any of its inherent authority under the act, lists the following materials and facilities over which the Commission is to retain regulatory authority and responsibility:

- a. the construction and operation of any production or utilization facility;
- b. the export from or import into the United States of byproduct, source or special nuclear materials, or of any production or utilization facility;
- c. the disposal into the ocean or sea of byproduct, source, of special nuclear materials as defined in regulations or orders of the Atomic Energy Commission; and
- d. the disposal by other means of such other byproduct, source, or special nuclear material as the Atomic Energy Commission shall determine by regulation or order, because of the hazard or potential thereof, are not to be disposed of without a license from the Atomic Energy Commission.

This subsection further specifies that notwithstanding any agreement concluded between the Commission and any state, the Commission can by rule, regulation, or order deny to a manufacturer, processor, or producer of any equipment, device, commodity, or other product containing special nuclear, source, or byproduct material the right to transfer pos-

session or control of such property except pursuant to license issued by the Commission.

Activities licensed by the Commission for the construction or operation of a production or utilization facility were stated as including but not limited to reprocessing plants, the possession and storage at the site of the licensed activity of nuclear fuel and of special nuclear, source, and byproduct materials used or produced in the operation of the facility, the transportation of nuclear fuels to and from the reactor site, and the discharge of effluent from the facility.⁷⁰ The Commission retained authority over ocean disposal because it involved the interests of a number of states and international considerations.

During the 1959 hearings before the Joint Congressional Committee on Atomic Energy, a representative of the Atomic Energy Commission stated under questioning⁷¹ that licensing of isotopes by states when they were ready would be appropriate under this subsection. The testimony during the hearing reflected that the special nuclear material which could be turned over to the states was in the form of plutonium and beryllium, sources used in subcritical assemblies by state universities in research and training programs.

The Commission's authority over other means of disposing of special nuclear, source, or byproduct waste materials⁷² was to be continued because of hazards incident to disposal. The Commission also indicated that it would continue to retain the exercise of regulatory controls over disposal by burial of significant quantities or types of such material. The Commission pointed out that burial of fission products and other radioactive materials having a long life could require continued regulatory supervision for centuries or even millenia after burial. At the present time, the Commission permits disposal by burial of significant quantities of radioactive materials on Commission-owned property only.⁷³

⁷⁰ See 1959 *Hearings*, *supra* note 21, at 306. The Commission believed that the discharge of effluent from the reactor involved many questions relating to the design and construction and operating procedures which precluded its separate consideration without reference to the overall responsibility for the reactor operation.

⁷¹ Mr. Lowenstein, Office of the General Counsel, *id.* at 302, 303.

⁷² Low level wastes are disposed of by being discharged into streams, oceans, pits, seepage basins, and sewerage systems and by burial on land. 1959 *Hearings*, *supra* note 21, at 44.

⁷³ A report issued in August 1959 by the Joint Congressional Committee on Atomic Energy stated that "for low level wastes, the program has been to dispose of them to nature (air, ground, water) with or without treatment, as required. . . ."

Section 274(d) specifies the conditions precedent to the conclusion of any agreement between the Commission and the states as to matters set forth in section 274(b). First, the governor must certify that his state has a program for the control of radiation hazards adequate to protect the public health and safety with respect to materials covered by the proposed agreement. Secondly, the Commission must find the state program to be not only compatible with that of the Commission for the regulation of such materials, but that it is also adequate to protect the public health and safety with respect to the materials to be covered by the agreement.

Section 274(e) requires that the terms of any agreement between the Commission and any state relating to materials specified in section 274(b) or concerning licensing exceptions be published once each week for four consecutive weeks in the Federal Register prior to the signing thereof. The Commission is required to allow, under such conditions as it deems appropriate, by regulation or order, an opportunity for interested persons to comment thereon. Each proposed agreement is to include its proposed effective date and is to be published in the Federal Register within thirty days of its signature.⁷⁴

Section 274(f) authorizes the Commission to grant such exceptions from its licensing requirements and its regulations applicable to licensees as it deems appropriate.⁷⁵

During the 1959 hearings the need for an express statement in

"High level wastes . . . are stored in underground tanks. . ." As to a better solution of the waste disposal problem the Committee stated that "the conversion of solids and the storage of these in salt formations seems to be the most favored. . . . The least favored was the disposal of high level wastes in the sea."

⁷⁴ This subsection in addition to other matters assured the Atomic Energy Commission that articles containing the material in question would be distributed only when they met the Commission's minimum safety requirements including manufacturing and processing specifications and labeling requirements. This subsection would assure that the control of such devices as gages, luminous markers, radiograph and teletherapy devices, electronic tubes, etc., were not only uniform but uniformly applied throughout the United States and foreign countries. Such control appears appropriate for the future when manufacturers may be able to incorporate materials of this nature in consumer products which could be widely distributed. This possibility presents a hazard controllable only at the federal level.

⁷⁵ Under the act of 1954 and regulations issued thereunder by the Atomic Energy Commission, no person may acquire or obtain source, byproduct or special nuclear material without first obtaining a license from the Commission. This licensing provision permits a proper pre-evaluation of the ability of a prospective licensee, his procedures and equipment to assure that appropriate safeguards can and will be observed by the applicant.

section 274 that Commission-licensed facilities or materials were subject solely to the Commission's regulations was discussed. A member of the Commission asserted⁷⁶ that the act already made the Commission's sole authority over these facilities and materials clear, and that it was desirable not to define precisely the extent of federal preemption,⁷⁷ it being preferable to leave this kind of detailed question to the courts for resolution.⁷⁸

Section 274(g) directed the Commission to cooperate with the states in formulating radiation standards which would insure the compatibility of state and Commission standards for such protection.⁷⁹

Section 274(h) establishes a Federal Radiation Council to consult with qualified scientists and experts in radiation matters and to advise the President with respect to radiation in the formulation of radiation standards and the establishment of programs of cooperation with states. This provision was the result of criticism that noticeable lack of coordination existed among the federal agencies as well as between regulatory agencies on state and federal levels.⁸⁰

Section 274(i) authorizes the Commission, in carrying out its licensing and regulatory responsibilities, to enter into agreements with states to perform inspections or other functions on a cooperative basis and to provide training of employees of, and such other assistance to, any state or political subdivision thereof or group of states as the Commission may deem appropriate. Such assistance by the Commission was to take into account the additional expense that might be incurred by

⁷⁶ Mr. Lowenstein, Office of the General Counsel, 1959 *Hearings, supra* note 21, at 308.

⁷⁷ See *First Iowa Hydro-Electric Co-op. v. Federal Power Comm'n*, 328 U.S. 152 (1946).

⁷⁸ Mr. Ramey, 1959 *Hearings, supra* note 21, at 310. The Executive Director, Joint Congressional Committee on Atomic Energy, indicated his belief that the testimony was "making some pretty good legislative history of what the intention is right now."

⁷⁹ It is important that state standards for protection against hazards of radiation be compatible with Atomic Energy Commission standards in industry, research, medicine, agriculture and other fields, be coordinated with the federal standards, and that there be reasonable compatibility in the various federal and state programs.

⁸⁰ 1959 *Hearings, supra* note 21, at 283-455. The Public Health Service had long had a program of radiological health. The Interstate Commerce Commission has important responsibilities in the transportation of radioactive materials in interstate commerce. Other federal agencies also had responsibilities and had issued regulations relating to control, transportation, or use of radiation sources, including the Civil Aeronautics Board, Federal Trade Commission, Postal Department, Department of Defense, Food and Drug Administration, U.S. Coast Guard, Maritime Administration, Bureau of Mines, and Department of Labor.

states as a consequence of agreements entered into under section 274.

Subsection (i) also contemplates agreements authorizing states to perform inspections as agents of the federal government with respect to activities of Commission licensees, and to assist in evaluating the meteorological and hydrological conditions of sites proposed for nuclear activities, and to perform radiological surveys and other appropriate services. The Commission is in need of such assistance, as it does not have the staff necessary to inspect regularly all of its licensed isotope users. The Commission has limited its enforcement to spot checks of licensees who possess large quantities of isotopes or those having particularly dangerous ones and has stated that of those licensees inspected only fifty-six per cent of them were in compliance with Commission regulations at the time of inspection.⁸¹ This participation by the states would assist in preparing them for the assumption of independent regulatory functions. Subsection (i) insures as well that states anxious to assume full responsibilities in the field of radiation will not suffer financially when compared with states which leave the full responsibilities for radiation hazard with the federal government.⁸²

Section 274(j) authorizes the Commission, upon its own initiative and after reasonable notice and opportunity for hearing to states with which agreements have been concluded, or upon the request of the governor, to terminate or suspend such an agreement with the state and reassert the licensing and regulatory authority vested in it under the act, should it deem such action necessary to protect the public health and safety.

Section 274(k) states that section 274 is not to be construed as affecting the authority of any state or local agency to regulate activities for purposes other than protection against radiation hazards.⁸³

Section 274(l) specifies that upon receipt of license applications, the Commission will give prompt notice to those states in which atomic energy activity is proposed to be conducted, of the filing of license appli-

⁸¹ Statement of Mr. Nelson, Director, Division of Inspection, Atomic Energy Commission, 1959 Hearings, *supra* note 21, at 93. See in this connection the remarks of Mr. Nelson delivered to the Regional Advisory Council on Nuclear Energy, Atlanta, Ga., reproduced in 1 CCH ATOMIC ENERGY REP. ¶ 4040 (1957).

⁸² Mr. Townsend, Director, Office Atomic Development, N.Y. State, had proposed that the bill recognize that any state negotiating an agreement with the Commission would be placing itself at a financial disadvantage vis-à-vis other states where the federal government would continue to perform this public service for the state at the expense of the nation. 1959 Hearings, *supra* note 21, at 388.

⁸³ See 1959 Hearings, *supra* note 21, at 312.

cations and is to afford to the states concerned an opportunity to offer evidence, interrogate witnesses and to advise the Commission in regard to the application. This requirement was the result of strong state protests against the Commission's prior practice of approving the situs of its licensed activities without the full consent of the state concerned or without granting full sympathetic consideration to state desires on the matter. During the hearings, Dr. Maurice B. Visscher, of the Minnesota State Board of Health, indicated the general displeasure of his state concerning the Commission's power to determine unilaterally the location of nuclear reactors. He stated that the "State Board of Health is legally responsible to the people of the state for all of health protection matters and cannot properly evade a responsibility in this area" He emphasized the fact that state agencies had access to information that was not available or obvious to national bodies, such as knowledge of local underground waters and the direction and nature of local water streams, matters of considerable importance in determining the location of nuclear reactors. In this respect he noted that the first major reactor in the state of Minnesota was "being installed at Elk River just on the banks of the Mississippi, a very few miles away from the point of supply of drinking water for a population of a million" and that it was "open to question, as a matter of fact, as to whether that was a very good place to locate that reactor."⁸⁴ Dr. Visscher stated that it was for this reason⁸⁵ that "state regulatory . . . bodies should have some definite legal authority in these matters."⁸⁶

As a practical matter, notice by the Commission of the filing of a license application, thus affording the states an opportunity to be heard on such applications, was not an innovation. Soon after the enactment of the 1954 act, the Commission had followed the practice of sending copies of commission licenses for source, byproduct, special nuclear material and nuclear facilities to the states concerned to keep them abreast of the Commission's activities. As to the applications by private industry for licenses to build and operate facilities such as reactors, and

⁸⁴ *Id.* at 273.

⁸⁵ In this respect, Senator Anderson, the Chairman of the Joint Committee, recalled that "In the Detroit Edison case, the Atomic Energy Commission not only paid no attention to the protest of the people of Michigan but paid no attention to the advice of its own reactor safeguards committee." *Ibid.*

⁸⁶ *Ibid.* See comment of Representative Holifield on this subject, 1959 *Hearings*, *supra* note 21, at 399, and see Adams, *Regulation of Health and Safety in Private Atomic Energy Activities: A Problem in Federal State Relationships*, 27 GEO. WASH. L. REV. 163 (1958).

for commercial waste disposal, the Commission had also advised the states thereof prior to the issuance of licenses so that they might submit comments. In the field of radioisotopes, the states as a general rule had also been advised of inspection visits to permit their participation.⁸⁷

Constitutionality of Federal Pre-emption in the Fields of Radiation and Public Health and Safety

Although the congressional intent to pre-empt for the federal government the fields of radiation, public health, and safety has been fully established by section 274, the constitutionality of this section remains unresolved. Its constitutionality, however, is not subject to serious doubt.⁸⁸ It would appear that the authority of Congress under the war power, the commerce power, the power to dispose of government property, and the power to tax is adequate to substantiate its control over radioactive material. It is unlikely that the courts will substitute their views for those of Congress as to the necessity for federal regulatory authority over public health and safety questions arising out of private atomic energy activity. During the past two decades, the Supreme Court has invalidated few laws of Congress for lack of power.⁸⁹ This indicates the Court's reluctance in the absence of specific constitutional prohibition to substitute its opinion for that of the legislature in regard to what is a proper exercise of legislative power.⁹⁰

⁸⁷ Testimony of Mr. Price, Director, Division of Licensing and Regulation, Atomic Energy Commission, 1959 Hearings, *supra* note 21, at 90; remarks of Mr. Nelson, Director, Atomic Energy Commission, Division of Inspections, delivered to the Regional Advisory Council on Nuclear Energy, Atlanta, Ga., reproduced in 1 CCH ATOMIC ENERGY REP. ¶4040 (1957). The Atomic Energy Commission under its present licensing procedure, however, is unable to give the states notice of all radiation sources which it authorizes under general licenses.

⁸⁸ This question has been thoroughly considered in many scholarly articles and reviews. See Estep, *Federal Control of Health and Safety Standards in Peacetime Private Atomic Energy Activities*, 52 MICH. L. REV. 333 (1954); Frampton, *Radiation Exposure—The Need for a National Policy*, 10 STAN. L. REV. 7 (1957); Krebs & Hamilton, *The Role of the States in Atomic Development*, 21 LAW & CONTEMP. PROB. 182, 190 (1956); Parker, *The Need for State Atomic Energy Programs In The West*, 29 ROCKY MT. L. REV. 296, 320-26 (1957). Extracts from a number of law review articles discussing this constitutional question are set forth in 1959 *Selected Materials*, *supra* note 20, at 283-373.

⁸⁹ The Supreme Court recently declared unconstitutional in time of peace Art. 2(11), Uniform Code of Military Justice, 64 Stat. 109 (1950), 10 U.S.C. § 802 (1958). See *Kinsella v. United States ex rel. Singleton*, 361 U.S. 234 (1960); *McElroy v. United States ex rel. Guagliardo*, 361 U.S. 281 (1960); *Grisham v. Hagan*, 361 U.S. 278 (1960).

⁹⁰ Estep, *supra* note 88, at 333-62, and cases cited therein.

The tenth amendment to the Constitution is generally cited in support of the proposition that the federal government lacks the power to control matters such as health and safety conditions. Although the Supreme Court at one time apparently placed considerable weight upon this amendment in deciding the power of Congress to act in areas which appeared to be reserved to the states, it now largely adjudicates such issues on the basis of the extent of congressional authority over war, commerce, taxation, or the disposal of government property.

The question of congressional authority over health and safety matters incident to private atomic energy activities in time of peace will undoubtedly be approached from the standpoint of possible congressional power under which such action could be justified. Since the act of 1954 has several distinct objectives, the constitutionality of its various provisions will necessarily be considered and determined on the basis of different constitutional powers. It is to be anticipated that the Supreme Court, under its rule of considering only questions necessary to the solution of actual cases and controversies, will adjudicate disputes by determining what effect the 1954 act has in the solution of each dispute and then deciding whether the provision of the act relied upon is within Congress' constitutional competence.⁹¹ The purposes specified in the Atomic Energy Act of 1954, as amended, appear to provide an ample basis to support the constitutionality of federal regulation of radiation health and safety.⁹²

This approach was espoused in the recent case of *Boswell v. City of Long Beach*.⁹³ In that case, the plaintiff had been licensed by the Atomic Energy Commission to collect, package, and dispose of radioactive waste by dumping in the sea. His application for a license to engage in the business of radioactive waste disposal had been approved after full investigation. The city later prevented the unloading of waste at the plaintiff's place of business and the Health Department withdrew its prior approval, thus causing the plaintiff to be criminally prosecuted for engaging in this business without a city license. The plaintiff thereupon brought action to restrain the city from interfering with the conduct of his business. The city defended on the ground that the

⁹¹ Estep, *supra* note 88; Krebs & Hamilton, *supra* note 88, at 190; *cf.*, Parker, *The Need For State Atomic Energy Programs In The West*, 39 ROCKY MT. L. REV. 296, 320-27 (1957).

⁹² See Cavers, *Legislative Readjustment in Federal and State Regulatory Powers Over Atomic Energy*, 46 CALIF. L. REV. 22 (1958).

⁹³ 28 U.S.L. WEEK 2481 (Cal. Super. Ct. March 21, 1960).

plaintiff operated a junk business, prohibited by the city's zoning ordinance in the area concerned. The court recognized that the disposal of radioactive waste at sea involved interstate and foreign commerce, and that, as such, its regulation was clearly within the sphere of interstate and foreign commerce. The court held that since the federal government had pre-emptive powers with respect to the disposal of radioactive wastes, the city's power was limited to such regulation as did not unreasonably interfere with federal action.⁹⁴

State Reaction To Section 274 of the Atomic Energy Act of 1954

Section 274 did not fully satisfy the aspirations and expectations of all states and interested organizations. Minnesota was strongly opposed to federal pre-emption with respect to peacetime utilization of atomic energy. Governor Freeman of Minnesota stated that although no state could or should modify any requirement of federal law or regulation so as to permit a more hazardous or less safe installation or utilization of atomic energy or radiation sources, "no reason appears why states should not be permitted to establish more vigorous or careful standards for installations by private parties within their own jurisdiction than the federal government has seen fit to establish. . . ." He asserted his belief that states should "be permitted concurrent jurisdiction to establish whatever safeguards relating to atomic energy installations or radiation sources or materials within their borders as they may deem proper . . . ," and expressed the hope that whatever legislation would be passed, Congress would make it clear that it does not "intend to pre-empt the field of regulation of atomic energy and radiation sources and materials."⁹⁵

Idaho had also expressed a strong demand for a concurrent authority to act in the atomic energy field,⁹⁶ and had indicated its intent "to proceed on the assumption that we do have primary responsibility for pro-

⁹⁴ The court observed, however, that a license from the Atomic Energy Commission did not exempt the plaintiff from all non-federal regulation generally applicable to others and that the city could regulate the activities of an Atomic Energy Commission licensee to an extent that did not unreasonably interfere with or frustrate the national objective committed to the exclusive jurisdiction of the Atomic Energy Commission. See Remarks of the Honorable Craig Hosmer of California, 106 CONG. REC. A3159-60 (daily ed. April 11, 1960), on this case.

⁹⁵ 1959 Hearings, *supra* note 21, at 477.

⁹⁶ Testimony of Governor Smylie, *id.* at 121, 122.

tecting the environment especially as it concerns water and air until perhaps by court decision we are proven to be wrong. . . ."⁹⁷

The Council of State Governments felt that although section 274 was adequate, there was a "practical disadvantage [to it] . . . since under the exclusive agreement method now appearing in the bill, a state may be required to go through the entire process of recruiting and training a staff, providing finances, passing enabling legislation and promulgating an administrative code—all before an agreement can be entered into and the staff can be put to work on the actual task of regulating." To remedy this, the Council proposed rewording subsection (j) to provide that absent an agreement there would be concurrent jurisdiction in the field of radiation.⁹⁸

The representative of the Conference of State Manufacturers Association favored state licensing and regulation of industrial users of radioisotopes because it was impractical for the federal government to seek to regulate and inspect thousands of such users, it would be impossible for the federal government to keep up with new uses of radioisotopes, and it would result in a wasteful duplication of functions.⁹⁹

Some states were opposed to the power of the Commission under subsection (j) to terminate or suspend its agreements with states, preferring that the authority granted by the agreement be final or that after a specified period of years the power of the Commission to terminate or suspend such agreements should lapse.¹⁰⁰ With few exceptions the states desired that section 274 insure state participation in Commission licensing proceedings, in Commission inspections, and in reactor locations.¹⁰¹

Some agencies and organizations expressed their beliefs that legislation relating to state cooperation was premature.¹⁰² The CIO-AFL

⁹⁷ Letter from Mr. T. O. Carver, Administrator of Health to the Chairman of the Joint Congressional Committee on Atomic Energy, February 18, 1959, *id.* at 120.

⁹⁸ Statement of the Honorable Elisha T. Barrett, Chairman, New York Joint Legislative Committee on Interstate Cooperation, *id.* at 326.

⁹⁹ Testimony of Mr. Christenson, *id.* at 408-10.

¹⁰⁰ Statement of Mr. J. M. Ferguson, Attorney General of Kentucky, 1959 *Hearings*, *supra* note 21, at 323; statement of Mr. Kinsman, Member of the Florida Nuclear Commission, *id.* at 336; statement of Mr. Norton, Dallas, Texas, Executive Vice-Chairman, Regional Advisory Council on Nuclear Energy, *id.* at 360.

¹⁰¹ Statement of Mr. Edmund G. Brown, Governor of California, 1959 *Hearings*, *supra* note 21, at 479; statement of Mr. Townsend, Director, Office of Atomic Development, New York State, *id.* at 389, 391; testimony of Dr. W. L. Wilson, Texas, *id.* at 138-40.

¹⁰² Statement of Mr. Rigney, Coordinator of Atomic Development, Mass., 1959

considered section 274 to be not only premature and unnecessary but as "constituting a grave potential threat to the health and safety of radiation workers."¹⁰³ Others opposed the transfer to the states of authority to establish standards pertaining to radiation health and safety and authority to conduct inspections to insure a minimization of "genetic harm, . . . because of the cumulative impact of radiation from a variety of different sources, the possibility of interstate contamination, the difficulty of effective monitoring and record keeping, the mobility of the population, and the future need for international uniformity of regulations."¹⁰⁴ Some even urged that federal preemption be extended to uranium and thorium mining activities and other atomic activities under state control and that the federal government reaffirm and reinforce its responsibility for radiation hazard control.¹⁰⁵

The statement submitted by the Association of the Bar of the City of New York, Special Committee on Atomic Energy, to the Chairman of the Joint Committee on Atomic Energy, on June 29, 1959, however, may be taken as representing the view of the large majority of the states at the time of their consideration of section 274. It stated "the bill as introduced is desirable essentially as it is written, except that we believe it should be modified to make it quite clear that the phase of atomic energy development the nation is now experiencing is transitional and the bill is an interim one. During this phase the states should have as large a role as possible, not only in regard to such matters as the control of radioisotopes, small quantities of fissionable material, and natural uranium and thorium, but also in regard to the location of such major facilities as nuclear reactors and waste disposal sites."¹⁰⁶

The majority of the states viewed section 274 as being on the whole a reasonable approach to the problem of defining for the time being the areas and the manner in which the states and the federal government could each operate most effectively.¹⁰⁷

Hearings, supra note 21, at 332. See statement of Mr. Bassett, Assistant Attorney General of West Virginia, representing Governor Underwood, *id.* at 335.

¹⁰³ See ATOMIC ENERGY COMMISSION, REPRINT OF COMMENTS ON PROPOSED CRITERIA, Appendix A (1960). [Hereinafter cited as REPRINT.]

¹⁰⁴ Statement of Mr. Frampton, Professor, University of Illinois College of Law, 1959 *Hearings, supra* note 21, at 412; *cf.*, statement of Mr. Wm. H. Berman and Mr. Lee M. Hydeman, Co-directors, Atomic Energy Research Project, University of Michigan Law School, *id.* at 394.

¹⁰⁵ Statement of Mr. Curran, Legislative Representative, Dept. of Legislation, AFL-CIO, *id.* at 340.

¹⁰⁶ 1959 *Hearings, supra* note 21, at 483; *cf.*, statement of Mr. Townsend, Director, Office of Atomic Development, New York State, *id.* at 386.

¹⁰⁷ See Statement from Mr. McCune, Vice President, Atomic Business Development

Conclusion as to The Adequacy of Section 274

Generally, Section 274 of the Atomic Energy Act provides adequately for the legitimate interests of states in the field of atomic energy activities for the present, and establishes a procedure under which they may fairly assume regulatory functions over private atomic energy activities which are commensurate with their technical capabilities. It provides a considered temporary scheme of control over a unique activity in which a careful balancing of legitimate state and federal objectives is required.¹⁰⁸

Whatever shortcomings may be attributed to section 274, its provisions will greatly stimulate state planning in the atomic energy field and will have salutary effects in forcing disinterested states to take administrative and regulatory measures and to assume responsibilities with respect to atomic energy activities which are properly theirs. It also provides an incentive in the promotional features of the atomic energy program.¹⁰⁹ New Jersey has recently demonstrated its interest in the promotional opportunities contemplated by section 274(i) and also in the possibility that the Commission might turn over to industry the task of processing high level waste.¹¹⁰ New York has also demonstrated a considerable interest in the promotional aspects of section 274 and in assuming regulatory responsibilities thereunder.¹¹¹ As of March 1961 only two states, New York and Kentucky, had enacted legislation of a nature which would make them eligible for consideration by the Commission for the assumption of regulatory responsibilities with respect to source, special nuclear and byproduct materials.

Marketing Services, to the Chairman of the Joint Committee on Atomic Energy, *id.* at 480.

¹⁰⁸ Generally, it can be said that the states recognize the present adequacy of section 274 in the light of their limited technical knowledge, lack of qualified personnel and the financial burden which would accompany full responsibility, if such could be granted them, for the control and regulation of atomic energy activities within their borders. See 1959 *Hearings, supra* note 21, at 37, 256, 275.

¹⁰⁹ § 274(b), (d), (i).

¹¹⁰ Waste processing is now undertaken only at Atomic Energy Commission installations at Oak Ridge, Tenn., Hanford, Wash., the Savannah River plant in South Carolina, and Los Alamos, New Mexico. The chemical processes of reactor fuel is done to separate and recover unfissioned and unburned fuel from wastes. At the present time unburned fuel must be transported to Atomic Energy Commission facilities at high cost.

¹¹¹ See Statement of Mr Townsend, Director, Office of Atomic Development, New York State. 1960 *Hearings, supra* note 21, at 357-60.

V

CRITERIA FOR THE CONCLUSION OF ATOMIC ENERGY AGREEMENTS
BETWEEN THE ATOMIC ENERGY COMMISSION AND THE
INDIVIDUAL STATES

In 1960, the Atomic Energy Commission drafted proposed criteria to assist the states in developing regulatory programs which would be compatible with that of the Commission.¹¹² The criteria, circulated to the states, federal agencies and other interested groups elicited critical comment from federal and state agencies, labor and industry, and interstate groups.¹¹³

In April 1961, the Commission, after having received the recommendation of its Advisory Committee of State Officials on the comments which had been received by the Commission on its proposed criteria, promulgated the criteria which could be followed with respect to the discontinuance of Commission regulatory authority over byproduct, source, and special nuclear materials under the provisions of Section 274 of the Atomic Energy Act.¹¹⁴

The criteria indicate the desirability of a single or central state regulatory authority. They require that the states advise the Commission of the agencies which will have authority over atomic energy activities made the subject of agreement with the Commission; that the states provide a summary of the legal authority which such agencies will exercise over these activities; and that they give assurance that there will be no duplication of regulation and licensing by state and local authority.¹¹⁵

The criteria specify that the agreements must insure that there will be no interference with or interruption of Commission-licensed activities or the processing of license applications by reason of the transfer of control. To this end, they suggest that the state in assuming jurisdiction should recognize and continue in effect, under state law, existing Commission licenses, including licenses for which timely applications for renewal have been filed, unless good cause warrants their earlier re-

¹¹² Proposed Atomic Energy Commission Criteria.

¹¹³ See REPRINT, *supra* note 103.

¹¹⁴ "Criteria for Guidance of States and the Atomic Energy Commission in the Discontinuance of Atomic Energy Regulatory Authority Over Byproduct, Source, and Special Nuclear Materials in Quantities Not Sufficient to Form a Critical Mass and the Assumption Thereof by States Through Agreement." [Hereinafter cited as the Atomic Energy Commission Criteria.]

¹¹⁵ *Id.* § 24.

examination or termination.¹¹⁶ Arrangements are to be concluded for the reciprocal recognition of state and federal licenses in connection with out-of-the-jurisdiction operations by state or federal licensees.¹¹⁷ This provision of the criteria should more properly have required reciprocity or have specified that the Commission would retain exclusive jurisdiction over any activity as to which separate nonreciprocal licenses would interfere with interstate commerce or the development of atomic industry.¹¹⁸

The criteria indicate the feasibility of insuring an interchange of federal and state information and assistance with respect to the issuance of regulations, licenses or authorizations, inspection of licensees, reporting of incidents and violations, and training and education problems.¹¹⁹

Under the criteria, agreements may relate to any one or more of the following categories of materials within the state but when they do, they must relate to the whole of such category or categories: byproduct, source, and special nuclear materials in quantities not sufficient to form a critical mass.¹²⁰ Agreements are to be deemed to incorporate the provisions of Public Law 86-373 and the related provisions of the Atomic Energy Act, and may further incorporate by reference provisions of other documents, including the Atomic Energy Commission criteria.¹²¹

To insure the fair and impartial administration of regulatory law, state laws are to be of general applicability, and machinery is to be set up for licensing of possession and use of radioactive materials and for taking of disciplinary action against business.¹²²

As to radiation protection, the criteria require adoption by the states of standards applicable to special nuclear, source, and byproduct materials which are adequate to protect against radiation and require uniformity as to maximum permissible doses, levels of radiation, and concentration of radioactivity as fixed by Part Twenty of the Atomic Energy Commission Regulations.¹²³ The criteria are not clear whether

¹¹⁶ *Id.* § 25.

¹¹⁷ *Id.* § 27.

¹¹⁸ See SPECIAL COMMITTEE OF THE ATOMIC INDUSTRIAL FORUM ON FEDERAL-STATE RELATIONS, REVIEW OF PROPOSED ATOMIC ENERGY COMMISSION CRITERIA FOR STATES UNDER ATOMIC ENERGY ACT, SECTION 274 (1960), [Hereinafter cited as REVIEW].

¹¹⁹ *Id.* § 26.

¹²⁰ *Id.* § 27.

¹²¹ *Ibid.*

¹²² *Id.* § 23.

¹²³ *Id.* § 3. This section states that the Atomic Energy Commission will follow the recommendations of the Federal Radiation Council, as approved by the President and

the uniformity with part twenty extends to the techniques for measurement of radioactivity which are set forth therein. In this regard, the criteria should have expressly provided for uniformity in measurement techniques, since limits of radiation and radioactivity mean little unless the manner of their measurement is standard.¹²⁴ The criteria provide that in individual cases the regulatory authority shall be authorized to impose additional requirements to protect health and safety, or to grant necessary exemptions which will not jeopardize health and safety.¹²⁵ This provision provides adequately for special circumstances and negates the possibility of conflicting, overlapping, and inconsistent standards in different jurisdictions which could jeopardize the public health, unduly burden the atomic industry, and retard the development of the beneficial uses of atomic energy. Should states attempt, without prior Commission consent, to materially modify the stringency of their radiation standards subsequent to their agreement with the Commission, the Commission would undoubtedly utilize its power under section 274(j) of the act to revoke or suspend the agreement.¹²⁶

Under the criteria the states are obligated to consider the total occupational radiation exposure of individuals, including those from sources which are not regulated by it,¹²⁷ to make surveys under the close supervision of technically competent personnel, to monitor personnel for the purpose of radiological protection, and to insure compliance with safety regulations.¹²⁸ It is unfortunate that the criteria do not compel uniform occupational radiation records throughout the United States for employees who work with sources of radiation. Uniformity in this respect is essential properly to safeguard the health of employees and to minimize problems incident to transient activities, the transfer of employment, and claims. It is to be hoped that for these purposes the Commission will, in consultation with the states, immediately develop a standard radiation exposure card for use under both federal and state radiation programs and that the Commission will foster as well the maintenance by the states of records which reflect the total cumulative radiation exposure of all persons from all sources. At the present time

that the basic radiation exposure standards in 10 C.F.R. part 20, represent the legal adoption of these recommendations.

¹²⁴ See REVIEW, *supra* note 118, at 8-9.

¹²⁵ Atomic Energy Commission Criteria, *supra* note 114, § 12.

¹²⁶ REVIEW, *supra* note 118, at 4.

¹²⁷ Atomic Energy Commission Criteria, *supra* note 114, § 4.

¹²⁸ *Id.* § 5.

no record is required to be maintained of the radiation dosage received from machine sources, particularly from X-ray machines, even though the medical X-ray is probably the principle source of exposure for most individuals, even for many who work with radioactive materials.¹²⁹

The criteria also require uniformity in labels, signs, and symbols affixed to radioactive products which are transferred from person to person.¹³⁰ They additionally provide that licensed radioactive materials in storage must be secured against unauthorized removal.¹³¹ This provision of the criteria has been severely criticized for its failure to prescribe that all radioactive material wherever stored be secured against unauthorized removal.¹³² The criteria also specify that the disposal of radioactive waste by dumping into air, water, or sewers, and by burial will be as provided by 10 C.F.R. Part 20.¹³³ Under the criteria the states must, to the extent of their jurisdiction, promulgate regulations applicable to the shipment of radioactive materials which are compatible with those established by the federal government.¹³⁴

As to records and reports, state regulatory programs must require that holders and users of radioactive materials (a) maintain records covering personnel radiation exposures, radiation surveys, and disposals of materials; (b) keep records of receipts and transfers of the materials; (c) report significant incidents involving the materials, as prescribed by the regulatory authority; (d) make available upon request of a former employee a report of his exposure to radiation; (e) advise an employee upon his request of his annual radiation exposure; and (f) inform each employee in writing when he has received radiation exposure in excess of the prescribed limits.¹³⁵ As to prior evaluation of uses of radioactive materials, regulatory authorities must require the submission of information on, and make an evaluation of, the potential

¹²⁹ See REVIEW, *supra* note 118, at 11, 13; REPRINT, *supra* note 103, at 3, 17-19. Comments of the American Federation of Labor and Congress of Industrial Organizations on the Atomic Energy Commission's proposed criteria of April 12, 1960, REPRINT, *supra* note 103, at Appendix A, 4, 11.

¹³⁰ Atomic Energy Commission Criteria, *supra* note 114, § 6.

¹³¹ *Id.* § 8.

¹³² REPRINT, *supra* note 103, at 24.

¹³³ Atomic Energy Commission Criteria, *supra* note 114, § 9.

¹³⁴ *Id.* § 10. This includes regulations promulgated by the Atomic Energy Commission, Interstate Commerce Commission, Federal Aviation Agency, Treasury Department (Coast Guard) and the Post Office, whose jurisdiction over interstate shipment of such materials under the criteria, are to continue. See REPRINT, *supra* note 103, at 24.

¹³⁵ *Id.* § 11.

hazards and the capability of the user or possessor prior to his receipt of the materials except as to categories of materials and uses as to which there is sufficient knowledge to permit possession and use without such prior evaluation. The Commission indicates that these excepted categories fall into two groups: first those materials and uses which may be completely exempt from regulatory controls; and second those in which sanctions for misuse are maintained without pre-evaluation of the individual possession or use. Regulatory authorities are permitted to authorize research and development and other activities which make multiple uses of radioactive materials and which utilize personnel with extensive training and experience without evaluating each specific purpose.¹³⁶

The criteria, it will be noted, fail to specify what materials may be possessed or used without prior evaluation and they have been criticized as improperly extending to research and development operations special privileges insofar as the control of hazards is concerned.¹³⁷

In evaluating a proposal to use radioactive material, the regulatory authority must determine the adequacy of the applicant's facilities and safety equipment, his training and experience in the use of the materials for the purpose requested, and his proposed administrative controls.¹³⁸ Only qualified persons, normally licensed physicians, possessing prescribed minimum experience in the use of radioisotopes or radiation, are to be permitted to use radioactive materials and radiation on humans.¹³⁹

The criteria prescribe that the possession and use of radioactive materials will be subject to inspection and testing by the regulatory authorities to insure compliance.¹⁴⁰ Moreover, the regulatory authorities must have legislation under which they may take prompt enforcement action against possessors and users of radioactive materials who are not in full compliance with laws and regulations.¹⁴¹

Persons who are to evaluate applications for licenses or authorizations and who are to inspect possessors and users of radioactive materials must possess the training and experience relevant to the type and level

¹³⁶ *Id.* § 13.

¹³⁷ REPRINT, *supra* note 103, at 29.

¹³⁸ Atomic Energy Commission Criteria, *supra* note 114, § 14.

¹³⁹ *Id.* § 15.

¹⁴⁰ *Id.* § 16.

¹⁴¹ *Id.* § 19. The criteria visualize administrative remedies which provide for the issuance of orders requiring affirmative action or the suspension or revocation of the right to possess and use, and the impounding of materials. They contemplate as well, the obtaining of injunctive relief and the imposition of civil and criminal penalties.

of radioactivity in the proposed use to be evaluated and inspected.¹⁴² The criteria state that such persons should have a bachelor's degree or equivalent in the physical or life sciences and specific training in radiation protection.¹⁴³

The criteria further specify that nothing in a state regulatory program shall interfere with the duties imposed on the holders of material owned by the Commission.¹⁴⁴

The criteria define special nuclear material, in quantities not sufficient to form a critical mass, as being uranium enriched in the isotope U 235 in quantities not exceeding 350 grams of contained U 235, or uranium 233 in quantities not exceeding 200 grams, or any combination of them in accordance with a prescribed formula.¹⁴⁵

The criteria have been criticized because they contain no provision for direct financial assistance for states which assume those regulatory responsibilities contemplated by section 274,¹⁴⁶ and because the states would be required to surrender by delegation to the Commission their inherent authority and responsibility with respect to nuclear reactor installations and with respect to the establishment of standards relating to sources of radiation not now subject to the Commission's authority.¹⁴⁷ The criteria have also been criticized because they fail to specify what action by the states would cause the Commission to terminate agreements concluded between it and the states and under what conditions, if any, the states could unilaterally terminate such agreements,¹⁴⁸ and because they fail to specify that states would not be eligible to conclude an agree-

¹⁴² *Id.* § 20. This requires competency to evaluate potential hazards associated with the many uses of radioactive materials, e.g., concentrations of such material in air and water, conditions of shielding, laboratory design, contamination control, and principles of radiation protection.

¹⁴³ *Id.* § 20.

¹⁴⁴ *Id.* § 21. There is a duty to report to the Atomic Energy Commission on the transfer of special nuclear material and on periodic inventory data.

¹⁴⁵ *Id.* § 22.

¹⁴⁶ Letter from the Chairman, Florida Nuclear Development Commission to the Chairman, Atomic Energy Commission Committee, Aug. 7, 1960, REPRINT, *supra* note 103, at 65.

¹⁴⁷ In a letter to the Atomic Energy Commission, May 5, 1960, Dr. Heustes, Michigan Dept. of Health, stated that the conclusion of agreements contemplated by the criteria would bring up the question of the constitutional authority that a state has in regulating and controlling the health and safety of its citizens. REPRINT, *supra* note 103, at 70, 71, 79 and Appendix A.

¹⁴⁸ Letter from Francis McCune, Office of the President, Atomic Industrial Forum, to Dr. Woodruff, Sept. 28, 1960, REPRINT, *supra* note 103, at 10, 12. See letter from Dr. Edmund G. Zimmerer, Iowa State Dept. of Health, to Dr. Woodruff, Aug. 12, 1960, *id.* at 70.

ment with the Commission unless they satisfy the Commission that they have an adequate workmen's compensation plan in the field of occupational radiation illness and injury.¹⁴⁰

The criteria requirement that state regulations on radiation must be, for all practical purposes, those promulgated by the Commission is eminently proper, as the Commission's regulations reflect the best thought in this field. They also provide the states with ready-made standards which, upon adoption, all other factors being equal, will facilitate the conclusion of appropriate agreements with the Commission.

The proposed criteria are such that only a very few states will in the immediate future be able to conclude an agreement with the Commission permitting them to exercise regulatory powers over atomic energy activities.¹⁵⁰ It is anticipated, however, that the criteria will greatly stimulate state promotional and regulatory ventures in the atomic energy field. New Jersey has recently submitted to the Commission for approval a multi-million dollar plan for processing by it of high level radioactive waste, the construction of facilities for docking, refueling, and servicing atomic powered ships, and the construction of a combined hospital and research center to treat radiation exposure cases.¹⁶¹ New York and Kentucky¹⁶² have also submitted an extensive regulatory and promotional program to the Commission for approval.¹⁶³

Other states, such as Texas and Illinois, have demonstrated particular interest in the regulatory opportunities presented by sections 274(b) and 274(d), particularly in regard to radioisotopes and radiation health and safety.¹⁶⁴

¹⁴⁰ Comments of the American Federation of Labor and the Congress of Industrial Organizations on the Proposed Atomic Energy Commission Criteria, REPRINT, *supra* note 103, at Appendix A, 1.

¹⁵⁰ During the 1959 Hearings, Mr. Graham of the Atomic Energy Commission stated that only "several" states were then qualified to exercise regulatory control over radiation sources. The states he had in mind were most likely Connecticut and New York and possibly Texas. 1959 Hearings, *supra* note 21, at 28.

¹⁵¹ 1960 Hearings, *supra* note 21, at 357-70.

¹⁵² Statement of Mr. Eason, Counsel, Federal-State Relations, Atomic Energy Commission, to this author in April 1961. Kentucky has recently enacted legislation which is adequate to establish eligibility to assume regulatory functions under an agreement with the Atomic Energy Commission. See 3 CCH ATOMIC ENERGY REP. ¶¶ 17, 241, at 23, 201-23, 205 (1959).

¹⁵³ As of April 1961 only these two states had enacted legislation which would be adequate under the Atomic Energy Commission Criteria to support a regulatory agreement with the Atomic Energy Commission.

¹⁶⁴ Statement of Mr. Morgan, Assistant to the Director, Health and Safety Division, Atomic Energy Commission, to this author in July 1960.

VI

ACTION WHICH STATES SHOULD TAKE WITH RESPECT TO ATOMIC ENERGY ACTIVITIES

Effective state participation in atomic energy activities rests upon three important considerations. The most important is the protection of the public health and safety; the second, the fullest possible development of atomic energy for the public welfare; and the third, the recruitment and fostering of industrial atomic energy.

Keeping these purposes in mind, the states should fully re-examine and re-appraise their tax structures, their legislation relating to corporate activities, their labor market and workmen's compensation statutes, their insurance laws, their atomic energy regulations, and their administrative structure. States which lack a unified and coordinated approach to atomic energy activities will be incapable of coping with or obtaining any substantial benefits from industrial atomic energy.

Administrative Organization

The primary task of state authorities is to determine the ability of traditional state agencies to cope with the unique problems, both regulatory and promotional, occasioned by atomic energy.

A comprehensive and coordinated state administrative plan is of primary importance. The plan must be one which is compatible with and flexible enough to be fully integrated with the atomic energy program of the national government. The state machinery must also be so organized that the Commission will be able to deal promptly and effectively with one centralized authoritative agency rather than with numerous uncoordinated state agencies each with overlapping jurisdiction over health, safety, and other matters of vital import to atomic energy activities.

Four principal types of state administrative organizations have been discussed. It is felt that the most appropriate administrative organization would be that which combines the centralizing features of the New England Model Act¹⁵⁵ and the authoritative features of the NCRP plan¹⁵⁶ with its unified control and regulation of radiation hazard.

¹⁵⁵ At least fifteen states were patterned on the New England plan by August of 1959. They were Alaska, Arkansas, Connecticut, Kansas, Kentucky, Maine, Massachusetts, Nebraska, New Hampshire, New York, Ohio, Rhode Island, South Carolina, Tennessee, and Washington. See 1 CCH ATOMIC ENERGY REP. ¶¶ 4212, 4229, 4281a, 4281b, and 17,232 (1957).

¹⁵⁶ Adopted by Delaware and North Dakota.

An effective state atomic administrative organization should provide an entirely new agency with exclusive jurisdiction over all radiation protection regulations and related matters. All other aspects of atomic energy activities, however, including inspections and the enforcement of radiation protection laws and regulations, could remain in the traditional state agencies. The centralization of radiation protection authority is necessary because of its technical nature, its unique potential, and the need for consistency and uniformity. This centralization would not interfere with the authority of existing state agencies to act with respect to atomic energy considerations in the traditional fields of insurance, workmen's compensation, the regulation of utilities, and other such matters. That the authority of such a new state agency would impinge upon certain aspects of existing agency authority and consequently might arouse bureaucratic disapproval does not detract from its inherent feasibility. If such an agency is to be established, the present rather than the future presents the most propitious opportunity for its successful creation.¹⁵⁷

State Laws and Regulations

The states should authorize the promulgation of comprehensive radiation regulations by a centralized agency. Such a procedure is preferable to the enactment of comprehensive radiation codes. These regulations should apply to all radiation facilities and sources and to radioactive materials and equipment, and provide for their licensing or registration.

Practically, it would be most feasible for state regulations to espouse the Commission radiation regulations and standards. To preclude contention and insure compatibility of Commission and state regulations, the state radiation protection and licensing regulations should reflect their applicability to all activities and materials except those as to which the federal government has pre-emptive authority. Regulations of this nature would insure to those states which desire to conclude agreements with the Commission that their request will not be denied for lack of compatibility with Commission regulations and standards. As a matter of necessity, state regulations should also require registration of all atomic energy facilities, materials, and equipment.

¹⁵⁷ The resulting uniformity and confidence in the adequacy of health and safety regulations would be viewed favorably by the public, industry and the federal government. It would also economize the use of scarce technical experts.

Agreements with the Atomic Energy Commission

With respect to matters as to which they have the requisite technical competence, the states should seek an agreement with the Commission vesting in them an authority coextensive with their capabilities within the limits permitted by the Atomic Energy Commission criteria. The states should also make full use of federal assistance, both financial and otherwise, which is available under Section 274 of the Atomic Energy Act, and they should provide educational incentives and otherwise foster professional education in the atomic energy field. A minimum level of competence on the part of prospective atomic facility operators, radiation specialists and others exercising regulatory or supervisory functions in the atomic energy field should be established. The states, of course, should make full use of their privileges under section 274 to express their views on such matters as site location for reactors and related matters, and should participate as much as possible in Commission inspection of facilities.

Interstate Cooperation

States should resort more extensively to interstate compacts for developing and regulating atomic energy activities. The Southern Interstate Nuclear Compact¹⁵⁸ provides an interesting example of extensive state cooperation and coordination in the field of atomic energy activities. This compact provides for a "nuclear board" composed of one member from each party state, which in addition to other matters, is to collect, correlate, and disseminate information in regard to civilian uses of nuclear energy, materials, and products; is to conduct programs of training for state and local personnel in matters relating to nuclear industry; is to promote the economic development and general welfare of the region; is to recommend to the signatory states changes in or amendments to their laws, codes, rules, regulations, administrative procedures and practices, and ordinances in any phase of nuclear activity; is to cooperate with the Commission and any other governmental unit or agency or any private agency; is to act as licensee of the United States or any party state to conduct research activity requiring a license and operate such research facilities; and finally is to recommend methods and practices to prevent and control nuclear incidents.

¹⁵⁸ The text of this compact appears in 3 CCH ATOMIC ENERGY REP. ¶ 17,243, at 23, 205-23, 209 (1959).

As of July 8, 1960; at least two of those states¹⁵⁹ eligible¹⁶⁰ had entered into the compact.

Examples of compacts for regulating the pollution or diversion of interstate waters which may result from industrial and other uses of atomic energy are the Ohio River Valley Water Sanitation Compact,¹⁶¹ the Tennessee River Basin Water Commission Compact,¹⁶² the Delaware River Basin Water Commission Compact,¹⁶³ and the Interstate Sanitation Commission.¹⁶⁴

State Legislation Indirectly Relating to Atomic Energy Activities

The states should thoroughly re-examine existing state legislation pertaining to matters which although not directly related to atomic energy activities have an impact thereon. Where necessary, they should enact new legislation. Careful scrutiny should be made of present industrial safety codes, laws, and regulations pertaining to the registration or licensing of natural radiation sources and to the use of radioactive equipment and machinery such as X-rays and fluoroscopic equipment, the enactment of legislation requiring the maintenance of cumulative dosage records including those received from machine sources, the sale of radioactive drugs and foods, insurance, workmen's compensation, statutes of limitations as they relate to radiation injury, statutes which may accord immunity from prosecution to state and charitable institutions utilizing atomic energy, regulations pertaining to licensing of professionals and specialists, laws and regulations relating to the agricultural use of radioisotopes, and legislation which will enable full enforcement

¹⁵⁹ Southern Interstate Nuclear Compact, KY. REV. STAT. §§ 152.200-250 (1960); LA. REV. STAT. §§ 51:1001-03 (Supp. 1960).

¹⁶⁰ Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

¹⁶¹ See on this subject, STASON, ESTEP & PIERCE, *ATOMS AND THE LAW* 944-51 (1959). Participating states are Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia. It has extensive regulatory and enforcement powers over industrial use and pollution of waters. 54 Stat. 752 (1940), 33 U.S.C. § 567a (1958); OHIO REV. CODE tit. 61, § 6113.01 (1953), PA. STAT. ANN. tit. 32 § 816.1 (1949).

¹⁶² Participating states are Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee and Virginia. It has a commission vested with powers similar to that possessed by the Ohio River Valley Water Sanitation Commission. See Tenn. Laws ch. 151 (1955).

¹⁶³ Participating states are Delaware, New Jersey, New York and Pennsylvania.

¹⁶⁴ Participating states are Connecticut, New Jersey and New York. See N.J. REV. STAT. tit. 32 §§ 18-1 *et seq.* (1937). See also ch. 779, 49 Stat. 932 (1935).

of all laws and regulations pertaining to the use and possession of atomic energy materials, to the end of insuring their adequacy to cope with the unique problems of atomic energy.

Federal Legislation

The states, upon attainment of the requisite technical competence, should persist in their demand for legislation which will vest in them substantially the same regulatory authority and control over atomic energy endeavors as they exercise over other private industrial enterprises within their territory. Uniformity with respect to radiation health and safety provisions can be insured by the provisions of the enabling federal legislation which recognizes the regulatory authority of states over their internal atomic energy activities.

The states should not permit bureaucratic reluctance to delay or thwart their exercise of regulatory power over atomic energy activities to the full measure of their capabilities.