Chapter III

HEALTH AND SAFETY REGULATION

As with many industrial operations, proper precautionary measures must be taken in making industrial use of atomic energy if serious hazards to employees and the general public are to be avoided. The use of atomic energy presents a number of unique hazards, not so much from sudden atomic accidents, although these may occur, as from the cumulative effect of exposure to excessive radiation, the damaging effects of which may not be known for many years. However, the general nature of the hazards is known and so are the techniques for preventing or minimizing them. In the program of the Atomic Energy Commission, expenditures for radiation protection of workers as well as the public consume a substantial portion of the total expenditures for atomic energy development. ¹ Under the Atomic Energy Act, the Commission has imposed rather stringent health and safety standards, not only on operations in government-owned installations, but also upon licensees who obtain and use fissionable materials and radioisotopes for private research and other purposes.² The experience of the Commission clearly indicates that the application of rigorous health and safety standards makes it possible to use atomic energy for many, if not most, peacetime purposes without endangering the health of workers or the public generally.³

Excessive radiation may become dangerous to health and even life in either of two ways. Due to close physical proximity to an external source of radiation, such as might result from inadequate shielding of radioactive materials or improper disposition of radioactive wastes, the human body may be injured by exposure to the source of radiation. Another type of radiation injury which can be even more serious than external radiation results from the ingestion of food, liquids, or gases contaminated by radioactivity. Radioactive particles which are ingested may remain lodged inside the body until the radioactivity has spent itself, which in the case of certain isotopes may be greatly in excess of

the life of the victim. This is referred to as internal radiation. Even small amounts of either type of radiation can have a very harmful effect on both animal and plant life. Therefore, in industrial use of atomic energy, the problem of protection against radiation hazards is a very important one. Not only are the hazards insidious in nature, just as with several other industrial operations, but the precautionary measures are often very expensive.

In 1954, in asking Congress to amend the Atomic Energy Act of 1946 to allow private industry to enter the field, President Eisenhower recommended the continuation of provisions authorizing the Atomic Energy Commission to establish minimum health and safety standards to govern the use and possession of fissionable and radioactive materials. As a result, the Atomic Energy Act of 1954, like the 1946 Act, gives the Commission a broad authority to establish such standards. This authority presents some unique problems for federal-state relationships in the regulation of health and safety with respect to industrial users of atomic energy.

Whether or not Congress intended to pre-empt the field of radiation health and safety regulation of Atomic Energy Commission licensees from state control, and the extent to which it may constitutionally do so, are questions for which no very clear answers exist at the present time. Prior to and at the time the Atomic Energy Act of 1954 was passed, Congress has very little to say on the subject, and the act itself does not contain an unequivocal statement of intent. Similarly, the case authority on the general subject of federal pre-emption in other areas of government activity is in a state of some confusion. Because the purpose of this chapter is to examine the general pattern of state health and safety regulation in the ten states selected for study—to consider the types of state agencies which may be involved, their respective jurisdictions, and the nature of their powers—analysis of the pre-emption questions is deferred until Chapter V of this Part where recent state radiation health and safety regulations are discussed in some detail. In this chapter it is assumed that state agencies may exercise power in respect to those radiation hazards regulated by the Atomic Energy Commission.

There are three general categories of state agencies which may possess specific authority under existing statutes to regulate various health and

safety aspects of the use of atomic energy for industrial purposes. If private industry constructs plants which utilize nuclear fuels to generate electricity, the public utility commissions may have such authority. Furthermore, state labor departments or industrial commissions are typically given authority to promulgate rules and regulations to protect the health and safety of employees. Finally, state and local health boards or departments usually exercise extremely broad powers over matters of health and safety. Thus, both labor and health agencies are likely to possess powers affecting the operation of atomic energy power plants even though public utility commissions also have regulatory powers in this area. In fact, the following discussion will demonstrate the confusing pattern of potential regulation and the overlapping jurisdiction of regulatory agencies in every state embraced in this study.

A. Public Utility Commissions

In the ten states surveyed in this study, most of the public utility commissions have been given general statutory authority that would permit the establishment of health and safety regulations relating to the construction and operation of atomic energy power plants. Since the first privately owned nuclear power generating station is yet to be built, there has been no occasion for the issuance of health and safety regulations by state public utility commissions relating to the operation of such a plant, but the authority is there ready to be exercised at the appropriate time. Actually, some of the commissions have not attempted to assert their health and safety regulatory powers, even in respect to conventional plants, and Texas, as previously indicated, has no state utility commission with jurisdiction over electric utilities.

In California, Illinois, and Missouri the state utility commissions are granted statutory authority to require a public utility, by special or general order, to construct, maintain, and operate its plant, equipment, and premises in such manner as to promote and safeguard the health and safety of its employees and the public generally. However, none of these commissions has exercised its powers in this respect.

6 The name of the agency exercising rule-making power over the safety of employees varies from state to state.


The Wisconsin Public Service Commission has power to "make reasonable rules, regulations, specifications and standards for the installation, operation and maintenance of all safety devices and measures." 9 Another section of the Wisconsin statutes provides that every public utility which owns, controls, or operates any wires over which electricity is transmitted "shall construct, operate and maintain such wires and the equipment used in connection therewith in a . . . safe manner. . . ." 10 The commission may also order "any alteration in construction or location or change of methods of operation required for public safety. . . ." 11 As a matter of practice, in Wisconsin the Public Service Commission collaborates with the Wisconsin Industrial Commission in the preparation of the Wisconsin Electric Safety Code, and these two commissions administer the code jointly. 12 The Public Service Commission administers that part of the code having to do with outside plant and equipment, and the Industrial Commission administers that relating to inside equipment. 13 This method of demarking lines of authority serves to alleviate possibilities of duplicating and inconsistent regulation by the two agencies. In other states the extent of the jurisdiction exercised by these two types of agencies is not so clearly defined.

The New York Public Service Commission is given authority to investigate methods employed in manufacturing electricity, and it has power "to order such reasonable improvements as will best promote the public interest, preserve the public health and protect those using such gas or electricity and those employed in the manufacture and distribution thereof. . . ." 14 Many years ago, in 1913, an order was promulgated by the Public Service Commission relating to safeguarding and protecting employees from injury resulting from generating equipment, but it was revoked in 1932. 15 No other regulations relating to the health and safety of employees have been found. Moreover, it should be noted that the term "factory," as defined for purposes of the jurisdiction of the New York Labor Department, excludes generating plants of public utilities subject to the jurisdiction of the Public Service Commission. 16

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10 Id., §196.74.
11 Ibid.
12 Provision is made for this type of joint administrative action in Wis. Stat. (1957) §20.904.
14 N.Y. Public Service Law §66(2).
16 N.Y. Labor Law §2(9).
But whether the statutory definition means that the Public Service Commission is intended to have exclusive jurisdiction over the adoption of standards to protect the health and safety of employees of electric plants utilizing nuclear energy is apparently far from clear.\(^\text{17}\)

The Ohio Public Utilities Commission is given general supervision over the manner in which public utilities are operated with respect to the "adequacy or accommodation afforded by their service, the safety and security of the public and their employees."\(^\text{18}\) The commission also may require that repairs, improvements, or additions be made to the plant or equipment of any public utility "in order to promote the convenience or welfare of the public or of employees. . . ."\(^\text{19}\)

In Pennsylvania the service and facilities of public utilities must conform with regulations and orders of the Public Utility Commission, and every public utility "shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public."\(^\text{20}\) A letter from the chairman of the Pennsylvania Public Utility Commission states: "While this Commission has express authority over matters of safety of workers and this would extend by implication to atomic energy plants the matter rarely comes up for adjudication."\(^\text{21}\)

The Michigan and New Jersey statutes are somewhat less specific in granting authority to the utility commissions to prescribe health and safety regulations. The Michigan commission, however, apparently assumes that a general grant of power is sufficient. The Michigan statute vests power in the Public Service Commission to "regulate all rates, fares, fees, charges, services, rules, conditions of service and all other matters pertaining to the formation, operation, or direction" of public utilities.\(^\text{22}\) Under this language, the Public Service Commission has promulgated an extensive set of regulations applicable to electric utilities, which includes provisions to protect employees.\(^\text{23}\) The only relevant New

\(^{17}\) Doubts were raised by letters from George H. Kenny, Ass't Counsel, N.Y. Public Service Commission, March 5, 1954, and Irving R. Tabershaw, Director, Division of Industrial Hygiene, N.Y. Dept. of Labor, March 25, 1954.

\(^{18}\) Ohio Rev. Code §4905.06.

\(^{19}\) Id., §4905.38.


Jersey statute is one which provides that the Board of Public Utility Commissioners may require any public utility to furnish "safe, adequate and proper service and to maintain its property and equipment in such condition as to enable it to do so." This provision seems to be directed primarily at the kind of service rendered rather than at the protection of employees, but it might, like the Michigan statute, be construed broadly to give the board jurisdiction over the safety of employees.

B. Labor Departments and Industrial Commissions

All ten states selected for this study have created some form of a state labor department or industrial commission to administer their labor laws. One of the primary functions of these labor agencies is the protection of the health and safety of employees, and accordingly the labor agency is usually given rule-making power to promulgate regulations safeguarding the health and safety of workers.

Many state labor agencies are evincing considerable interest in regulations relating to the use of fissionable and radioactive materials. As will be noted later, some states have already promulgated extensive regulations covering the use, handling, and storage of radioactive substances, and several other states plan to adopt similar regulations in the near future. Probably most of the state agencies will follow substantially the recommendations contained in handbooks published by the National Bureau of Standards on problems of radioactivity. The extent of the jurisdiction of the labor agencies varies from state to state. In most states the agency is given jurisdiction over employers and employees

25 Several letters from state labor agencies indicated this intention. The recommendations contained in these handbooks are formulated by the National Committee on Radiation Protection and its subcommittees. The handbooks available thus far include: No. 23, "Radium Protection"; No. 27, "Safe Handling of Radioactive Luminous Compounds"; No. 41, "Medical X-ray Protection"; No. 42, "Safe Handling of Radioactive Isotopes"; No. 48, "Control and Removal of Radioactive Contamination in Laboratories"; No. 49, "Recommendations for Waste Disposal of Phosphorus-32 and Iodine-131 for Medical Users"; No. 50, "X-ray Protection Design"; No. 51, "Radiological Monitoring Methods & Instruments"; No. 52, "Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water"; No. 53, "Recommendations for the Disposal of Carbon-14 Wastes"; No. 54, "Protection Against Radiations from Radium, Cobalt-60, and Cesium-137"; No. 55, "Protection Against Betatron-Synchrotron Radiations up to 100 Million Electron Volts"; No. 56, "Safe Handling of Cadavers Containing Radioactive Isotopes"; No. 57, "Photographic Dosimetry of X- and Gamma Rays"; No. 58, "Radioactive Waste Disposal in the Ocean"; No. 59, "Permissible Doses from External Sources of Ionizing Radiation"; No. 61, "Regulation of Radiation Exposure by Legislative Means"; No. 63, "Protection Against Neutron Radiation Up to 30 Million Electron Volts." All are available from the U.S. Government Printing Office at nominal prices.
wherever located. Because the employment relation is emphasized, the labor agency would seem to be without power to regulate safety standards for other persons, such as the self-employed person and the independent contractor, although the applicability of the statutes to the independent contractor is by no means clear. Therefore, under this type of statute there is a possible gap in the regulation by labor agencies of the use of atomic energy. But it is an extremely small gap, because most uses of atomic energy will undoubtedly involve employment of persons in the usual sense. Certainly any electric utility operation would involve an employer-employee relationship.

Another type of statute found in many states gives the labor agency jurisdiction over types of operations, typically "factories" or "manufacturing establishments." Under such statutes the jurisdiction of the agency will depend on the definition of these terms. Some states undertake to define further these terms, while others are silent as to their meaning. There are few cases in which it has been necessary to decide whether or not an electric utility is a "factory" or "manufacturing establishment." Certainly the weight of authority supports the view that an electric generating plant is a manufacturing establishment, and it would seem also that the term "factory" would normally cover electric utilities. However, as to certain potential users of radioactive by-products, such as hospitals, laboratories, etc., it is doubtful whether the statute will apply.

Because of the differences in the statutory patterns in the states under discussion, a state by state analysis seems to be the best method of surveying the kinds of powers possessed by state labor agencies, together with questions of possible overlapping jurisdiction, and the current state of regulation with respect to the use of radioactive substances.

1. California

At least three provisions of the California labor statutes should be noted for possible bearing on the regulation of uses of radioactive sub-

26 See Annot., "What is a 'manufacturing establishment' within meaning of regulatory statutes," 96 A.L.R. 1351 at 1354 (1935).
28 Because many electric plants using nuclear power will still use steam boilers in their operations, it will be necessary for the industry to comply with any applicable state regulations. Nearly all states have statutes relating to the operation, inspection, and licensing of steam boilers. See, e.g., Cal. Labor Code §§7681 et seq.; III. Stat. Ann. c. 24, §§23-72 et seq.; Mich. Stat. Ann. §17.132; N.Y. Labor Law §204; Ohio Rev. Code §§4103.01 et seq.
stances. One provision requires that every "factory or workshop in which one or more persons are employed" shall be ventilated so as to render harmless, so far as practicable, all injurious gases, vapors, dust, or other impurities which may be produced, and criminal sanctions are provided for violations.

Another statute requires the owner of every "factory" to register with the Division of Labor Statistics and Research, and also to furnish certain pertinent information. "Factory" is defined as "... any factory, workshop, mill, or other manufacturing establishment where five or more persons are employed." Although there is little authority on the matter, it is quite likely that an atomic power plant would be considered a "factory" for the purpose of this statute, and therefore any such plant built in California would be required to register. Chemical plants built to process radioactive substances would seem likewise to be subject to registration under this statute.

The most significant California statute, however, is that which confers industrial safety rule-making authority on the Division of Industrial Safety. The division is given "power, jurisdiction, and supervision over every employment and place of employment in this State" in order to enforce all laws and lawful orders relating to the protection of the life and safety of employees. "Employment" is defined to include "the carrying on of any trade, enterprise, project, industry, business, occupation or work ... or any process or operation in any way related thereto. ..." "Place of employment" is defined to include "any place, and the premises appurtenant thereto, where employment is carried on, except a place the safety jurisdiction over which is vested by law in any State or Federal agency other than the division."

It was noted previously that in California the Public Utilities Commission is given authority to make rules and regulations to promote and safeguard the

30 Id., §2354.
31 Id., §2601.
32 Id., §2600.
33 See supra notes 26 and 27.
34 The Division of Labor Statistics and Research has the duty to inform various health authorities of the location of factories registered with it. Cal. Labor Code §2604.
35 Id., §6500.
36 Id., §6312.
37 Id., §6303.
38 Id., §6302. An opinion of the Attorney General holds that the division's power is confined to the premises where the labor is performed. 13 Cal. Op. Atty. Gen. 48 (1949).
health and safety of employees in public utility plants. Since an atomic power plant would be classified as a public utility, does the statute mean that because the Public Utilities Commission has safety jurisdiction over plant employees, the Division of Industrial Safety does not? A 1953 statute seems to answer this question in the negative, for it is there provided that the “jurisdiction vested in the division shall in no instance, except those affecting exclusively the safety of employees, impair, diminish, or in any way affect the jurisdiction of the Public Utilities Commission. . . .” Therefore, the division apparently has jurisdiction over the safety of employees in public utility plants, and the similar power previously vested in the Public Utilities Commission is displaced.

Under this statutory authority over “employment” and “places of employment,” and without any legislative authority to regulate radiation hazards specifically, the Division of Industrial Safety has promulgated a somewhat extensive set of regulations as a part of the “General Industry Safety Orders” establishing minimum standards for employees exposed to ionizing radiation. These regulations are discussed in detail and compared with the standards of the Atomic Energy Commission and the National Committee on Radiation Protection and Measurement in Chapter V.

There are other General Industry Safety Orders which may be applicable to establishments in California using radioactive substances. There are regulations establishing minimum standards for the prevention of harmful exposure of employees to dusts, fumes, mists, vapors, and gases, and other regulations create minimum standards for the use, handling, and storage of hot, flammable, poisonous, corrosive, and hazardous substances in all places of employment except laboratories. The General Industry Safety Order concerning radiation protection does not explain its effect on these orders.

2. Illinois

The Illinois Health and Safety Act of 1937 is applicable “to all employers engaged in any occupation, business or enterprise in this State, and their employees,” except farming and coal mining opera-

43 Id., §§4140 et seq.
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The Industrial Commission, an agency of the State Department of Labor, is given authority to administer the act and to make rules to protect the life, health, and safety of employees. However, to effectuate these purposes, the act limits the Industrial Commission by providing that it "shall make such rules only for:

(a) The proper sanitation and ventilation of all places of employment to guard against personal injuries and diseases.
(b) The arrangement and guarding of machinery and the storing and placing of personal property to guard against personal injuries and diseases.
(c) The prevention of personal injuries and diseases by contact with any poisonous or deleterious materials, dust, vapors, gases or fumes."

While no rules relating specifically to radiation or radioactivity have been adopted under this act, it would appear that the commission has power to adopt regulations affecting various aspects of the use of radioactive materials. Clause (a) would authorize regulations in regard to air contamination and the disposal of radioactive wastes, Clause (b) would authorize the regulation of shielding and the storage of radioactive materials, and Clause (c) would authorize rules for monitoring, maximum exposures, and the safe handling and use of radioactive substances. However, the commission is expressly denied power to make any rule requiring the "submission of any plan, specifications or other information concerning any proposed installation, alteration, construction, apparatus or equipment . . ." and therefore no procedure can be established requiring advance approval of radiation installations.

In 1951 the Illinois Industrial Commission issued regulations relating to labeling in the use, handling, and storage of substances harmful to the health and safety of employees. The regulations provide for the labeling of containers of substances "known to constitute a health, safety, or physical hazard to employees in the workplace."

45 Id., c. 48, §137.2.
46 Id., c. 127, §§5.03, 43.06.
47 Id., c. 48, §137.1.
48 Id., c. 48, §137.3.
49 Id., c. 48, §137.4. There are two other clauses which relate to artificial atmospheric pressure and scaffolds.
50 Ill. Health and Safety Act and Health and Safety Rules (1953). These rules are required by statute to be published annually, and they are obtainable from either the Secretary of State or the Industrial Commission under a recent administrative procedure act. Ill. Stat. Ann. c. 127, §268.
52 Ill. Health and Safety Rules, Industrial Commission (1953), Part "J".
poison, fire or explosion hazard." 58 Such regulations would probably apply to radioactive substances, since they constitute a health hazard and because poisons are defined as substances known to be "so toxic to man as to afford a hazard to health. . . ." 54

It was noted previously that broad powers are granted to the Illinois Commerce Commission regarding the health and safety of employees and the public in the operation of public utilities. 55 In a rather recent case, it was argued that the authority given to the Industrial Commission under the Health and Safety Act gave that commission exclusive jurisdiction over matters relating to the health and safety of employees, and consequently by implication repealed the provisions of the Public Utilities Act giving jurisdiction to the Commerce Commission over the employees of public utilities. However, the Illinois Supreme Court rejected this argument on the well-recognized principle that a statutory construction which would result in repeal by implication of another statute is not favored, and that there must be an irreconcilable repugnancy to justify an inference of repeal. The court, therefore, enforced a Commerce Commission order applicable to railroad employees. 56 Apparently, the decision means that both the Industrial Commission and the Commerce Commission may prescribe rules and regulations establishing standards covering the use of radioactive materials and maximum radiation exposures in atomic energy power plants if built in Illinois. 57 This type of overlapping jurisdiction is confusing and objectionable.

3. Michigan

No general rule-making authority has been given to the Department of Labor in Michigan, consequently no general safety regulations are

53 Id., §1, Rule 1.
54 Id., §1, Rule 2(b).
57 One fact, peculiar to Illinois, which should be noted, is that the industrial hygiene program is administered by the State Labor Department [U.S. Federal Security Agency, Public Health Service, "Directory of State and Territorial Health Authorities—1952," p. 20], in contrast to other states in which this program is a function of the Department of Health. The statute provides that the Department of Labor shall prosecute any violation of law relating to the inspection of factories, provided that "before any prosecution is instituted based upon the laboratory findings of any industrial hygiene unit of the Department of Labor, any person dissatisfied with such findings shall be entitled to have an independent review by the central laboratory of the Department of Public Health." Ill. Stat. Ann. c. 48, §59.15.
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in existence. However, a statute requires that the owner of any factory operating "machinery of every description" must equip it with "proper safeguards." The "commission" or "factory inspector" shall determine whether machinery and equipment are properly guarded. The Commissioner of Labor also has authority to order the installation of proper and adequate ventilation devices to preserve the health and safety of persons in "manufacturing, mercantile and other establishments." Apparently, the conclusion to be drawn is that, while no generally applicable regulations can be adopted by the Department of Labor in Michigan, it has authority to deal with specific plants on an individual basis regarding industrial safety hazards.

Under existing statutes, perhaps the Public Service Commission would be more likely to adopt regulations establishing minimum safety standards in the use of radiation sources than would the Department of Labor. It was noted earlier that the Public Service Commission has promulgated employee health and safety regulations applicable to electric utility plants. If nuclear energy were used in such a plant in Michigan, it is conceivable that the Public Service Commission would formulate health and safety regulations to cover the peculiar hazards incident to such operations. Moreover, "the investigation and prevention of hazards associated with industrial operations is a function of the Division of Occupational Health," of the Michigan Department of Health, and that agency has recently promulgated comprehensive radiation safety rules. Thus, in Michigan there is also the potentiality of at least three regulatory agencies having jurisdiction to regulate matters of radiological health, and inconsistent action could create a regulatory "maze" for atomic power installations.

4: Missouri

The Industrial Commission of Missouri, which controls and supervises the work of the Department of Labor and Industrial Relations, has authority to approve or disapprove all rules or regulations promulgated by any division within the department. One of these divisions is the

60 Id., §17.33.
Division of Industrial Inspection.\textsuperscript{68} Within one month after the occupancy of any factory, workshop, or mill, the Director of Industrial Inspection must be notified thereof,\textsuperscript{64} and thereafter annual reports are required to be made to the director by every "factory, foundry or machine shop or other manufacturing establishment doing business within this state."\textsuperscript{65} All machines and machinery used in "manufacturing, mechanical, and other establishments" must be "safely and securely" guarded to prevent injury to employees. In the alternative, notice of dangers must be posted when it is not possible to guard the equipment. The director may order necessary alterations, additions, or repairs to enforce compliance.\textsuperscript{66} Any person operating any machine which generates poisonous gases in its operation (this might embrace radioactive gaseous wastes) must provide the machine with a hood connected to a blower or suction fan.\textsuperscript{67} Apparently, the director does not possess specific authority to promulgate generally applicable safety regulations, but he can order necessary alterations or additions to protect the health and safety of employees "of any establishment."\textsuperscript{68} In this respect the situation in Missouri is somewhat similar to that prevailing in Michigan.

There are special provisions relating to the prevention of occupational diseases in the Missouri statutes which are more or less applicable to the hazard associated with radioactive materials. Every employer carrying on any "work, trade or process which may produce any illness or disease peculiar to the work or process carried on, or which subjects the employee to the danger of illness or disease incident to such work, trade or process . . ." shall provide approved and effective devices or methods to prevent industrial or occupational diseases.\textsuperscript{69} This statute would seem to embrace the uses of radioactive materials which involve radiation hazards. Certain processes are declared especially dangerous to the health of employees. Included among them is any process involving certain enumerated metals "or any poisonous chemicals, minerals, acids, fumes, vapors, gases, or other substances," in which these substances are "generated or used, employed or handled by the employees in harmful quantities, or under harmful conditions, or come in contact with in a harmful way. . . ."\textsuperscript{70} If radioisotopes are considered a "poisonous
chemical,” their use by employees would be within the letter of the statute. Radioactive materials may and probably will be considered “poisonous substances.” If these special provisions apply to an employer, he must provide working clothes and “adequate and approved respirators.” Moreover, employees subject to the hazards must be examined monthly by a physician. Employers subject to these special provisions must also provide sanitary and adequate dressing rooms and lavatories, maintain working areas in a sanitary condition, take prescribed measures to prevent and remove dust, and post prescribed notices. The extent of the applicability of these provisions will have to be worked out from time to time as occupational hazards result from the radioactive substances.

5. New Jersey

The statutes of New Jersey do not precisely define the extent of the jurisdiction of the Department of Labor and Industry, but apparently it is broad enough to include factories and other establishments as well as extending to the employment relationship, and the commissioner has a general rule-making authority to enforce provisions of the labor laws he administers. Several statutes and regulations may possibly be relevant to the use of radioactive materials.

One New Jersey statute requires that every person “engaging in any productive industry within the supervision of the department” shall register with the Commissioner of Labor and Industry. An occupational disease statute provides: “Every employer shall, without cost to his employees, provide reasonably effective devices, means and methods to prevent the contraction by them of any illness or disease incident to the work or process in which they are engaged.” Certain special precautions are necessary with respect to especially dangerous processes, but these are so defined as to include only those relating to the manu-

71 See St. Joseph Lead Co. v. Jones, 70 F.2d 475 (1934) and Langeneckert v. St. Louis Sulphur & Chemical Co. (Mo. App. 1933) 65 S.W.2d 648, for broad interpretations of the word “poisonous.”
73 Id., §292.360.
74 Id., §292.380.
75 Id., §292.390.
76 Id., §292.420.
78 Id., §34: 6-48.
facture of certain lead compounds. Other statutes require proper ventilation to render harmless any gases, vapors, dust, or other impurities injurious to health that may be generated in any manufacturing establishment, and for proper safeguards to be placed on all machinery.

Existing regulations of the New Jersey Department of Labor and Industry include a listing of “permissible concentration limits of vapors, gases, fumes, mists, dusts and radiant energy” applicable to “all places of employment.” In these regulations, radiant energy is defined as “energy derived from radio-active substances or shortwave radiation which, upon exposure, may have a toxic and injurious effect on the body.” These limits, which are discussed in Chapter V of this Part, do not conform with the current standards of the Atomic Energy Commission or the National Committee on Radiation Protection and Measurement. In 1954 and 1955 the New Jersey Department of Labor and Industry indicated that it was in the process of formulating comprehensive rules and regulations to cover all types of radiation hazards. These regulations were to follow the recommended standards of the National Committee on Radiation Protection and Measurement, except that a qualifying board was to be appointed to review applicants for certification. Furthermore, a substantial filing fee, based on the value of the installation, was to be exacted so that, in effect, the proposed New Jersey code would establish a licensing system for users of radiation sources. It does not appear that these regulations have been promulgated.

The Public Health Council of New Jersey, an official state agency having jurisdiction over general public health problems, has promulgated regulations relating to radiation. In the Sanitary Code, it is provided that “X-ray machines and all other sources of radiation shall be shielded, transported, handled, used and kept in such manner as to prevent users thereof and all persons within effective range thereof from being exposed to excessive dosage of radiation.” Maximum exposures, however, are not prescribed.

80 Id., §34: 6-49.
81 Id., §34: 6-61.
82 Id., §34: 6-62.
86 New Jersey labor regulations also require that safety committees be organized in plants under the jurisdiction of the Department of Labor and Industry. These committees supervise safety inspection work, devise methods to avoid accidents, and insure that new employees are properly instructed as to hazards and that employees are
6. New York

New York's Department of Labor, headed by an Industrial Commissioner,87 contains the Board of Standards and Appeals88 which has broad authority to promulgate rules and regulations to effectuate various provisions of the labor laws.89 Rules may be made to minimize personal injuries and diseases and to require "reasonable and adequate" protection for the lives, health, and safety of employees.90 Rules adopted by the board constitute the Industrial Code.91

New York statutes also require the registration of "factories" with the Industrial Commissioner.92 In addition, there are provisions requiring the guarding of machinery in factories,93 and others requiring adequate ventilation and removal of "gases, fumes, vapors, fibers or other impurities" from factories.94 However, "power houses, generating plants and other structures owned or operated by a public service corporation or a municipal corporation other than construction or repair shops, subject to the jurisdiction of the public service commission" are excluded from the definition of factory.95 Therefore, an atomic energy installation used exclusively to generate electrical energy would seemingly not be subject to the jurisdiction of the Industrial Commissioner over "factories."

However, it seems probable that the Board of Standards and Appeals could make certain rules applicable to atomic energy power plants, even though such plants would not be subject to the provisions relating to "factories," for it is provided that: "Whenever the board finds that any industry, trade, occupation or process involves such elements of danger to the lives, health, or safety of persons employed therein as to require special regulation for the protection of such persons . . . ," the board may make rules to guard against these dangers by requiring licenses, by

educated in safety practices. Safety inspectors are required, and weekly safety inspections must be made. Slightly different regulations apply to three categories of plants: 1 to 50 employees, 150 to 500 employees, and over 500 employees. There are other requirements as to first aid facilities, emergency hospital, and a dispensary, including the items of equipment that must be on hand in each of these units. State and Federal Labor Laws, New Jersey Edition. 493-500 (1953).

87 N.Y. Labor Law §10.
88 Id., §12-a.
89 Id., §27-a.
90 Id., §28(1).
91 Id., §§29, 200.
92 Id., §250.
93 Id., §256.
94 Id., §299.
95 Id., §2(9).
requiring medical supervision of persons employed, and by "other appropriate means."96 It is the opinion of the counsel to the Labor Department that this provision authorizes the board to make rules applicable to power plants even though they are subject to the general jurisdiction of the Public Service Commission.97

Under this provision, the Board of Standards and Appeals of the State Department of Labor has, in fact, issued regulations relating to radiation protection.98 The code, effective December 15, 1955, is very extensive, and its purpose is to offer reasonable and adequate protection in "every place where any employee in the course of his work may be exposed to radiation in excess of one tenth the permissible weekly dose" except medical, dental, veterinary, and educational institutions, clinics, and officers which are subject to the provisions of the Sanitary Code.99 The provisions of both the Labor and the Sanitary Codes, which apply to sources of radiation, are discussed and compared in Chapter V.

Since the New York State Department of Health has also issued regulations covering ionizing radiation, it should also be noted at this point that the Division of Industrial Hygiene in the Department of Labor administers all laws relating to industrial hygiene for the Department of Health.100 But when a condition resulting from the operation of a business, plant, or public utility constitutes a threat to the general public health, as distinguished from that of employees only, the jurisdiction of the Department of Health will probably be paramount.101 Furthermore, the regulations of the Labor Department do not apply to hospitals, medical clinics, dental offices, podiatry offices, veterinary clinics, educational institutions, and commercial, private, or research laboratories performing diagnostic procedures or handling equipment of material for medical use which are subject to the provisions of the New York State Sanitary Code promulgated by the Health Department.102

96 Id., §28(2).
97 Quotation in letter from Irving R. Tabershaw, Director, Division of Industrial Hygiene, N.Y. Dept. of Labor, March 25, 1954.
98 N.Y. Industrial Code Rule No. 38.
99 N.Y. Public Health Law, Appendix, State Sanitary Code, c. XVI.
7. Ohio

The Ohio Department of Industrial Relations has jurisdiction over "every employment and place of employment." It has the duty, among others, to administer and enforce the general laws of Ohio relating to "manufacturing" and "electrical" establishments and all other laws protecting the life, health, safety, and welfare of employees. Statutes require that the employer furnish safe employment; i.e., furnish and use safety devices, safeguards, methods, and processes which will protect employees.

All shops and factories, which are defined to include manufacturing and electrical establishments, are subject to inspection by personnel of the Division of Workshops and Factories, and the division may order the owners of these establishments to correct dangerous, unhealthy, or unsanitary conditions. Furthermore, numerous requirements are imposed on owners and operators of shops and factories relating to safety precautions, accident reports, notices to be posted on dangerous machinery, and additional safety rules.

Although independent of the Department of Industrial Relations, the key rule-making agency in matters of employee health and safety appears to be the Industrial Commission, which has broad authority to adopt rules and regulations prescribing safety devices, safeguards, or other means or methods to protect the life, health, and safety of employees.

It should be noted at this point that the Ohio Department of Health promulgated regulations in 1947 for the prevention and control of diseases resulting from toxic fumes, vapors, mists, gases, and dusts applicable to every place of employment. One regulation provides that "No employer shall use or permit to be used in the conduct of his busi-
ness, manufacturing establishment or other place of employment, any process, material or condition known to have an adverse effect on health, unless reasonable provisions have been made to prevent injury to the health of the employees and of the public." 115 Radiation exposures are limited to 0.1 roentgen per day, 116 which was the old standard. Regulations also exist with respect to ventilation, 117 personal protective equipment, 118 isolation of hazardous operations, 119 and posting notices and giving periodic instruction to employees regarding radiation hazards. 120 However, these Ohio Department of Health regulations do not contain the amplification of standards contained in detail in California and New York regulations. The failure to include standards in respect to handling, storage, and disposal of radioactive materials and to provide a more detailed listing of permissible exposures can be attributed largely to the fact that the Ohio regulations were adopted when relatively little technological information was available. Nonetheless, the action of the Ohio Department of Health in respect to places of employment coupled with the seemingly broad jurisdiction of the Ohio Department of Industrial Relations in respect to matters of employee health and safety further demonstrates the confusion in jurisdiction over atomic energy affairs among several state agencies.

8. Pennsylvania

In Pennsylvania the situation is somewhat confused by the existence of both a Department of Labor and Industry having broad rule-making powers and an Industrial Board 121 which not only has rule-making powers of its own 122 but also must approve or disapprove all regulations promulgated by the Department of Labor and Industry. 128 The most important legislation is the Health and Safety Act of 1937, 124 which grants the Department of Labor and Industry power to make rules and regulations to effectuate the provisions of the act. The statute extends to every "establishment" in the state, which is de-

115 Id., Reg. 247.
116 Ibid.
117 Id., Reg. 248, 249.
118 Id., Reg. 251.
119 Id., Reg. 252.
120 Id., Reg. 254.
122 Id., §§1442, 1443, 1444.
123 Id., §§565, 574.
fined as "any room, building or place . . . where persons are employed . . . except farms or private dwellings. . . ." 125 All establishments must be "constructed, equipped, arranged, operated, and conducted as to provide reasonable and adequate protection for the life, limb, health, safety, and morals of all persons employed therein." 126 All toxic and noxious dusts, fumes, vapors, and other atmospheric impurities which create a condition of danger to employees must be removed, or if that is impractical, employees must wear personal protective devices. 127 Recognizing hazards of radioactivity, in 1953 the Pennsylvania legislature added the underlined words to the following provision:

When employees, due to the nature of employment, are subject to injury from flying particles, falling objects, sharp or rough surfaces or materials, hot, corrosive or poisonous substances, acids or caustics and injurious light rays or harmful radioactive materials, they shall be provided with and shall wear goggles, other head and eye protectors, gloves, leggings, and other personal protective devices. 128

Other Pennsylvania statutes require proper ventilation, sanitation, 129 and proper guarding of machinery 130 in all establishments within the state. Thus, in Pennsylvania, as in other states, there are several possibly applicable statutes governing atomic energy health and safety problems, and at least two state agencies apparently have rule-making power so that inconsistent regulations may prove overly burdensome on the new atomic energy industry.

In 1955 the Pennsylvania Department of Labor and Industry indicated that it intended to issue a comprehensive set of radiation health and safety regulations to protect persons within its jurisdiction, 131 but it was subsequently decided to establish an "Interdepartmental Committee and prepare regulations in which both the Department of Labor and Industry will be vitally interested. . . . It is the intent of the Interdepartmental Committee to have the Department of Health police the regulations and the Department of Labor and Industry enforce them." 132 As of February of 1958 no regulations had been promulgated by this committee.

125 Id., §25-1.
126 Id., §25-2(a).
127 Id., §25-2(e).
128 Id., §25-2(h).
130 Id., §§19, 25-7.
9. Texas

Texas has not created an industrial board or commission with authority to adopt rules and regulations establishing health and safety standards for employees. There is, however, a Bureau of Labor Statistics, headed by a Commissioner whose duties involve the gathering of data, making reports, and reporting to the appropriate authority the violation of any law with respect to employment. Under a chapter entitled "Protection of Female Employees" are found several provisions which require that factories and establishments be kept free from poisonous or noxious gases and injurious dust arising from any process, and that wastes be removed and disposed of "in such manner as not to cause a nuisance." The Commissioner of Labor Statistics is authorized to inspect any factory or other establishment where five or more persons are employed and to require the correction of any unsanitary or dangerous condition. But since the title of the statute embracing these provisions refers to the health, safety, and comfort of employees of establishments where females are employed, this statute may only be applicable to plants or establishments which employ women, even though the body of the statute does not seem thus to limit its applicability. Hence, the extent of the authority of the Commissioner of Labor Statistics is not clear from a study of the statutes.

However, the Texas State Department of Health has general rule-making authority to require that industrial establishments provide adequate protection for the health and safety of workers. A statute administered by the State Department of Health provides that no employer shall use in the conduct of any place of employment "any process, material, or condition known to have any possible adverse effect on the health of any person . . . employed therein unless arrangements have been made to maintain the occupational environment to the extent that such injury will not result." The Department of Health is required to make available information concerning maximum allowable concentrations of toxic gases and concerning environmental standards.

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184 Id., arts. 5145-5149.
186 Id., art. 5174.
188 Id., art. 5175.
188 Id., art. 5179.
188 See Texas Laws, Fourth Sess. 1918, p. 132.
which pertain to the health and safety of employees of industrial estab­lishments.\footnote{Id., §19(b).} Pursuant to the above authority, the Department of Health issued Regulations on Radiation Exposure which became effective in September of 1956. These regulations, which are discussed in Chapter V, follow the recommendations of the National Committee on Radiation Protection and Measurement.

10. Wisconsin

In Wisconsin under the act which establishes the Industrial Com­mission,\footnote{Wis. Stat. (1957) §§101.01 et seq.} it is made the statutory duty of every employer to furnish a safe place of employment and to do everything reasonably necessary to protect the “life, health, safety, and welfare” of employees and “frequenters.”\footnote{Id., §101.06. A “frequenter” is a person other than an employee who may be in a place of employment “under circumstances which render him other than a trespasser.” Id., §101.01(5).} The terms “place of employment” and “employment” are defined broadly to include all activity wherein any person is, directly or indirectly, employed by another for direct or indirect gain or profit, except in private domestic services and agricultural operations.\footnote{Id., §§101.10(1), (2).}

The Industrial Commission has been given very broad rule-making powers to ascertain and determine reasonable safety devices and safeguards and to adopt standards to protect employees and “frequenters” of places of employment.\footnote{Id., §§101.10(3), (4), (5); §101.09.} It is further provided that local regulatory bodies, such as city councils or boards of health, shall not be deprived of power over places of employment, but in case of conflict with an order of the Industrial Commission, the latter shall amend or modify the local order.\footnote{Id., §101.16(1).}

Unquestionably, the Industrial Commission would have jurisdiction over an atomic power plant built in Wisconsin. Moreover, the fact that such a plant would be subject to the Wisconsin Public Service Commis­sion seemingly has no effect on the powers of the Industrial Commission over the same plant.\footnote{Letter received from O. T. Nelson, Director of Safety and Sanitation, Wisconsin Industrial Commission, dated Feb. 19, 1954.} As was noted earlier, the Industrial Commission and the Public Service Commission collaborate in the preparation and administration of regulations affecting electric utility plants.
The Industrial Commission has adopted a number of regulations relating to industrial safety which would be applicable to uses of radioactive materials. An order prescribing maximum permissible exposures, as amended April 2, 1954, stipulates 0.3 roentgen per week. Uranium is included on the list of toxic dusts, fumes, and mists, and the allowable limit for uranium in soluble compounds is 0.05 milligrams per cubic meter and 0.25 milligrams per cubic meter in insoluble compounds. Other regulations require adequate ventilation, protection from dusts, proper disposal of exhaust materials, and personal protective devices. Many other regulations are in force relating to specific operations or specific hazards.

As with other states it is apparent that more than one agency has jurisdiction to promulgate regulations governing the health and safety of atomic energy operations. However, the cooperation between the Public Service Commission and Industrial Commission in Wisconsin has served to ameliorate potentialities of inconsistent or overlapping regulations that may have a detrimental effect on growth of atomic energy industrial pursuits.

II. Conclusion

The analysis of the foregoing statutory provisions concerning labor safety regulatory agencies reveals that the statutes and regulations applicable to an atomic energy industry vary considerably from state to state, but that in all the states covered by this study some type of regulatory agency has been granted sufficient power to have some authority over users of nuclear power and radioisotopes. A failure on the part of persons entering the atomic field to assess existing and prospective statutes and regulations may lead to wasteful expenditures if basic redesigning or supplemental equipment are required subsequently by order of a state labor agency. The establishment of an atomic energy industry where a state agency has regulatory power, but has not yet exercised the power, will be even more difficult to handle, since a later adoption of regulations may even cause temporary suspension of operations. Therefore, consultation with appropriate agencies appears advisable to determine in advance the permissible scope of activity.

148 These regulations are available in pamphlet and mimeographed form from the Industrial Commission. They will be cited simply by number.
149 Order 2002.
150 Ibid.
151 Orders 2003 to 2021.
152 See General Orders on Safety, Orders 1 to 83.
Undoubtedly the most significant aspect of the present state regulatory pattern is the conflict of jurisdiction of state agencies in matters of employee health and safety. Not only do the public utility commissions typically have regulatory powers, but also labor departments and, in some instances, health departments are authorized to issue regulations relating to employees and places of employment. Moreover, as we progress to an examination of (1) the general powers of health departments in respect to the health and safety of members of the general public and (2) the powers of other typical state agencies, the confusing and overlapping jurisdictions of the several agencies will appear to have even a greater possibility of seriously impeding the exploitation of atomic energy if unreasonable duplication of effort is required on the part of the atomic energy industry.

C. Health Departments and Boards

All ten states selected for study have established state health departments and, in addition, have provided for various local boards of health. In the past, it would appear that the health departments have been primarily concerned with standards and measures to protect the general public, leaving specific safety regulations for employees to appropriate labor agencies. However, recent experience indicates that this may not be the case with respect to radiation hazards: of the seven comprehensive state radiation health and safety codes in effect as of April 1958, only two were promulgated by labor agencies, and, of the five issued by health departments, four are designed to protect employees as well as the general public.

Of all the state agencies which may regulate radiation hazards, the powers of the state health departments and boards appear to be the most significant. For the most part, the regulations of the departments of labor and the public utility commissions are limited in their application to places within the control of the person subject to the regulations. Quite obviously these boundaries are not recognized by either direct radiation or by disseminated radioactive materials which may contaminate the surface and underground waters, sewage systems, and the atmosphere of the state. Adequate employee protection standards do not necessarily assure that the health of the general public outside the radiation installation will be safeguarded against radiation hazards caused by products containing radioactive materials or radioactive stack gases, for example. While it appears that the state health departments have the broadest health and safety powers and, therefore, are in the best
position to give radiation hazards the sort of comprehensive attention required, it is unfortunately difficult to draw a clear line of demarcation between those matters which may be regulated by state health agencies and those matters which fall into the regulatory sphere of other state agencies. As is indicated in Chapter V of this Part, only New York has made any attempt to solve the jurisdictional problem, and that solution is not altogether satisfactory. Moreover, since both local boards of health and local legislative bodies may possess general powers over public health and safety, the problems created by overlapping jurisdiction are compounded. It is desirable, therefore, to examine the general scope of the existing statutory powers of state and local health agencies, together with possible limitations thereon, in order to form some appraisal of the extent to which they will bear upon atomic enterprise.

I. State Health Departments

The state health departments of the ten states studied typically have "general supervision of the interests of the health and lives of the people of the state," and are given power "to adopt, promulgate, repeal and amend rules and regulations consistent with law for the protection of the public health." Under the Ohio statute conferring rule-making power on the Public Health Council, the Attorney General of Ohio has ruled that the council has authority to adopt regulations establishing maximum allowable concentrations for substances used in industry which are dangerous to public health. As indicated in the discussion of labor department regulation, the Ohio Department of

153 See Zullo v. Bd. of Health of Woodbridge Tp., 9 N.J. 431, 88 A.2d 625 (1952), indicating that a local board of health and a municipality had concurrent jurisdiction to regulate trailer camps.


Health and Safety Regulation

Health has in fact issued regulations governing places of employment. As a result the commissioner has recently promulgated health and safety regulations pertaining to all sources of ionizing radiation in Michigan. While the memorandum considered it doubtful if a registration requirement could be sustained under the existing powers, the Michigan regulations nevertheless contain such a provision. In contrast, it apparently was believed necessary to extend the powers of the health departments in Colorado, Connecticut, Massachusetts, New Jersey, New York, Oregon, and South Dakota to authorize them to regulate radiation hazards, for the legislatures of each of these states have recently enacted appropriate statutes. The Colorado Board of Health is authorized "to establish and enforce standards for exposure to environmental conditions, including radiation, that may be deemed necessary for the protection of the public health." In Connecticut the State Department of Health may incorporate into the Sanitary Code regulations governing the operation of any source of ionizing radiation or the production, transportation, storage, possession, or disposition of radioactive materials. These regulations are to be based on the standards of the Atomic Energy Commission or, in lieu thereof, upon the latest recommendations of the National Committee on Radiation Protection and Measurement. Registration requirements are specifically authorized. Massachusetts conferred a more limited authority upon its Department of Public Health in a statute which directs it to "prescribe and establish rules and regulations to control the transportation, storage, packaging, sale, distribution, production and disposal of radioactive materials which may affect the public health," but the statute does not authorize the promulgation of regulations concerning the use of radioactive materials. Similarly, sources of radiation which do not consist of radioactive materials are not covered. Furthermore, the act specifically states that the powers of the Department

157 Supra note 114.
158 Inter-office Memorandum to Attorney General T. M. Kavanaugh from Assistant Attorney General R. A. Derengoski regarding the rule-making powers of the State Commissioner of Health, dated Nov. 8, 1955.
of Labor and Industries to establish regulations for the protection of the health and safety of employees against radiation hazards are not impaired. In 1958 the New Jersey legislature enacted a "Radiation Protection Act" establishing a Commission on Radiation Protection within the Department of Health and empowering the Commission to adopt rules and regulations to prohibit and prevent "unnecessary radiation." The New York Public Health Law was amended in 1955 to authorize the Department of Public Health to regulate the "public health aspects of the use of ionizing radiation and the handling and disposal of radioactive wastes." Similarly, the Oregon Board of Health in 1957 was directed to promulgate regulations and standards for the safe use, handling, disposal, and control of all radiation sources within the state after it had conducted a two-year study of the problems.

Finally, the South Dakota Department of Health is authorized to "develop comprehensive policies and programs for the evaluation and determination of hazards associated with the use of radiation" and to "adopt, promulgate, and enforce such rules and regulations as may be necessary." These statutes are analyzed in greater detail in Chapter V of this Part as are the regulations of the health departments of Connecticut and New York, which were promulgated pursuant to the above authorization.

Another general power commonly given to state departments of health is the power to investigate complaints involving nuisances or potential hazards to life and health and to require the abatement of any such nuisance. In some states the abatement of nuisances is left to local boards of health.

For illustrative purposes, two statutes may be noted. In Ohio it is provided that any industrial establishment which produces industrial wastes must submit plans for the treatment and disposal of such wastes to the State Department of Health. These plans must be approved before the plant may be constructed. Under the California statutes, the State Department of Health is empowered to abate "contamina-

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164 N.Y. Public Health Law §201(1)(s).
165 Ore. Laws 1957, c. 399.
166 S.D. Laws 1957, H.B. 826.
168 For detailed provisions, see below.
tion." 170 "Contamination" is defined as a condition which results from the disposal of industrial wastes of such a nature as to create an actual hazard to the public health. 171 Contamination is also made a crime. 172 These two statutes illustrate the two different approaches to the problem; i.e., advance approval on the one hand and subsequent action on the other.

Other states considered in this study have not yet adopted radiological health regulations, but some of them use as a guide to determine the existence of possible health hazards the standards adopted by the American Conference of Governmental Industrial Hygienists or by official bodies such as the United States Public Health Service, the National Bureau of Standards, or the Atomic Energy Commission. 173

2. Local Health Agencies

Each of the ten states examined in this study has also established some form of health regulation at the city and county levels. In addition, many states have provided for the organization of township health boards and health districts which may be comprised of nearly any possible combination of political subdivisions. Usually these local health boards are invested with powers very similar to those of the state health departments, except that the territorial jurisdiction of the local health agency, of course, is limited, and the local health board is normally subject to the paramount authority of the state department of health. 174 As might be expected, there is considerable divergence in the types of health boards authorized by the various statutes. However, the powers conferred on the agencies appear to be somewhat similar, whether the boards are established at the city, township, county, or a hybrid district level.

a. Cities

In some states incorporated cities and towns are given authority to pass such ordinances as may be deemed necessary for the protection of the health of the inhabitants. 175 Other states authorize the creation of

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171 Id., §§5410(e).
172 Id., §§5461.
city health boards which are invested with powers to make rules and regulations necessary for the protection and preservation of the public health.\textsuperscript{176} It is possible that an industry located within the corporate limits of a municipality may even be subject to regulation both by municipal ordinance adopted by the city council and by administrative regulation promulgated by a local health board.\textsuperscript{177} Only detailed examination of the regulations applicable in any given area can resolve the complexities of the situation.

b. Counties

Again the statutory provisions are diverse. In Texas and Missouri health regulation at the county level is not very extensive. In Texas the statutes provide that a “City-County Health Unit” may be formed in any county containing an incorporated city which has a population of not less than 90,000 nor more than 120,000.\textsuperscript{178} The City-County Board of Health is authorized to make rules and regulations “to promote and preserve the health of the county.”\textsuperscript{179} Apparently, this is the only instance of county health regulation in Texas. In Missouri rule-making power over public health matters is granted to the county court (a governing body) but only in counties having an assessed valuation of $300,000,000 or more.\textsuperscript{180}

Each of the remaining eight states covered by this study provides for some form of health regulation either by a county health board or by the governing body of the county. In California and Illinois the governing body of each county is given power to adopt ordinances and regulations for the protection of the public health.\textsuperscript{181} In Ohio townships and villages in each county constitute a general health district,\textsuperscript{182} and the board of health of a general health district “may make such orders and regulations as are necessary for . . . the public health, the prevention or restriction of disease, and the prevention, abatement, or suppression of nuisances.”\textsuperscript{183} County health boards in Michigan, New


\textsuperscript{177} See Zullo v. Bd. of Health of Woodbridge Tp., supra note 153.

\textsuperscript{178} Tex. Civ. Stat. art. 4436a-1, §1.

\textsuperscript{179} Id., §2.

\textsuperscript{180} Mo. Rev. Stat. (1949) §192.300.


\textsuperscript{182} Ohio Rev. Code §3709.01.

\textsuperscript{183} Id., §3709.21.
Jersey, New York, and Wisconsin are given authority to promulgate rules and regulations to protect the public health.\textsuperscript{184}

The power to abate or suppress nuisances is normally a corollary of the rule-making power. In 1951 Pennsylvania passed a rather elaborate "Local Health Administration Act."\textsuperscript{185} This act, applicable to all but first-class counties,\textsuperscript{186} authorizes the creation of county or joint-county departments of health\textsuperscript{187} which are given broad rule-making power to make regulations "for the prevention of disease, for the prevention and removal of conditions which constitute a menace to health, and for the promotion and preservation of the public health generally."\textsuperscript{188} In 1943 Illinois passed a somewhat similar act providing for county or multiple-county public health departments.\textsuperscript{189} However, under this act, the county health board recommends to the county governing board the adoption of ordinances, rules, and regulations necessary to promote and protect public health, which latter board has power to promulgate the ordinances, rules, and regulations.\textsuperscript{190}

c. Townships

In at least four states township boards of health may also exist. In Michigan each township board is a board of health,\textsuperscript{191} with authority to make regulations concerning nuisances or causes of sickness and to abate nuisances.\textsuperscript{192} Likewise in Illinois and New Jersey rule-making powers may be exercised by township boards of health.\textsuperscript{193} In Pennsylvania the governing authorities of townships are empowered to make such regulations as may be deemed necessary for the health and safety of the inhabitants of the township.\textsuperscript{194}

d. Health Districts

Many states also authorize the consolidation of political subdivisions into "hybrid" health districts. For example, California provides that a

\textsuperscript{186} This excludes only Philadelphia, id. at 248.
\textsuperscript{188} Id., §4211(c).
\textsuperscript{189} Ill. Stat. Ann. c. 111 1/2, §§20c et seq.
\textsuperscript{190} Id., §20c13; id., c. 34, §25.12.
\textsuperscript{192} Id., §§14.63, 14.68.
local health district may be formed from either incorporated or unincorporated territory of one or more counties.\textsuperscript{195} Illinois authorizes towns or road districts to be combined to form "public health districts."\textsuperscript{196} Rule-making power is not given by express statutory provision to the governing boards of either of these types of districts, but by liberal statutory interpretation they may be deemed to have such power.\textsuperscript{197} In Michigan, New Jersey, Ohio, Pennsylvania, and Wisconsin political subdivisions may join in the creation of a consolidated health district, consisting of two or more counties, two or more municipalities, or two or more existing health districts.\textsuperscript{198} In New York "part-county health districts" may be established in counties containing one or more cities having a population of 50,000 or more. The cities themselves are excluded from such districts.\textsuperscript{199} These health districts which are merely combinations of other health districts or counties have the same powers as the component elements had before combination.

3. Conclusion

This somewhat cursory examination of state and local health agencies and their powers is sufficient to indicate that an atomic energy entrepreneur will assuredly be confronted with a legion of health boards, commissions, and agencies when he embarks upon his atomic enterprise. He should consult with both state and local health agencies at the earliest possible planning stage. In spite of the fact that few of these agencies have established regulations governing the use of radioactive and fissionable materials, the legal power to do so exists. Therefore, the entrepreneur will necessarily have to assume the burden of ascertaining to the best of his ability the probable scope of health regulation. As an initial proposition, it would appear advisable to err on the side of safety by installing all proved types of safety equipment designed for the protection of the public health. However, prohibitive costs may constitute a substantial deterrent to following that course of action, and the possibility will always remain that subsequent administrative regulations may result in the necessity of expensive changes in equipment or manner of operation.

\textsuperscript{195} Cal. Health & Safety Code §903.
\textsuperscript{199} N.Y. Public Health Law §340(2).
The burden thus placed on new atomic energy ventures to guess the extent of future health regulation suggests, of course, that the state and local health agencies should be induced to adopt extensive regulations as promptly as feasible. However, a general unfamiliarity with atomic energy health hazards prevails among state and local officials, and reliable scientific data as to the effect of radiation on human life is not yet available. Moreover, the technical nature of the requirements of standards adequate to afford safety against radiation is not generally understood although knowledge is increasing rapidly. These factors would seem to necessitate an attitude of extreme caution on the part of state and local health officials. Unduly burdensome health regulations may serve to delay or even prevent the establishment of a new industry in the community. On the other hand, too lax regulations may result in serious impairment of public health and safety. This dilemma is not one that is easily resolved, but on balance we are led to the conclusion that the wiser course is to avoid the promulgation of exhaustive health standards until such time as more reliable scientific data is available. Meanwhile, general regulations not only may provide a sufficiently definite pattern to justify industrial expenditures but they also may be adaptable to changing conditions.

D. Summary of State Health and Safety Regulations

The foregoing examination of the health and safety regulatory agencies and powers of the ten selected states makes it evident that in each state at least one, and in most cases, two or more state or local agencies have been given by statute sufficient power to regulate health and safety conditions for atomic energy enterprises. It is true that the precise reasons for conferring jurisdiction upon a labor department differ from those which result in the power being given to a health department or a public service commission. The labor department is primarily concerned with health and safety of employees; the health department is primarily concerned with the health and safety of the general populace; and the public service commission is responsible for the conservation of public interests in connection with public utilities and their operation. The regulations evolved by the different agencies for these separate purposes may happen to be identical or they may be so divergent as to be absolutely impossible of simultaneous achievement. When the latter situation prevails, and it is very likely to happen unless proper cooperative measures are taken, atomic energy enterprises will find themselves operating in violation of at least one set of valid regulations and as a
result becoming subject to consequent penalties. Then, too, there will be the very considerable waste of effort by the state and the regulated industry. Of course, the potentiality of inconsistent regulation by different state and local agencies already exists for industries other than atomic, but it generally has been avoided in fact by cooperative efforts among the several agencies. It is to be hoped, and perhaps expected, that the agencies will cooperate in a similar manner in regard to atomic affairs, and that they will adopt regulations which will be consistent and not impose insuperable burdens upon a new industry.