Chapter IV

MISCELLANEOUS REGULATION

A. Disposal of Wastes

Many industrial processes require the disposal of large quantities of noxious waste materials in the course of their operations. Since improper disposal of industrial wastes may endanger the health, safety, or comfort of persons or may be detrimental to property rights, special types of governmental regulation have been evolved to control such action. In the interests of public health, many states have established water pollution control programs which may restrict the disposal of certain types of industrial wastes. Also, in the interests of conservation, laws are frequently enacted protecting fish and wildlife by prohibiting the discharge of harmful or poisonous substances into waters of the state, and such laws may serve indirectly to regulate waste disposal. The prevention and abatement of air pollution in some states, especially in metropolitan areas, is another type of regulation of disposal of industrial waste products. Finally, the law of public and private nuisance, affording remedies to public officials as well as private individuals, may be invoked to restrict or prohibit the discharge of waste materials produced in industrial processes.

Waste products created in operations involving the use of atomic energy are unique and potentially even more dangerous than ordinary industrial wastes since they may contain substantial amounts of radioactivity. Radioactive wastes produced in reactor operation or in other utilization of atomic energy may be found in the form of either solids, liquids, or gases. Since either existing or future regulation of industrial waste disposal will no doubt embrace the disposal of radioactive wastes as well, an examination of the various types of regulation is desirable.

The subject of radioactive waste disposal has received express legislative or administrative attention in a number of states recently. In California "no person shall bury, throw away, or in any manner dispose of radioactive wastes in such a manner as to endanger the lives or health of human beings." The California Department of Public Health is authorized to issue written orders prohibiting dispositions in

violation of this statute and to seek injunctions against violators of these orders. Similarly, the South Dakota Department of Health is authorized 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." 2 Violations of these orders are deemed misdemeanors upon each day in which they occur. 8 Since the term "radioactive materials" may be construed to include radioactive wastes under the laws of Connecticut, 4 Massachusetts, 5 New York, 6 and Oregon, 7 persons disposing of radioactive wastes in these states are subject to the appropriate regulations of the respective health departments. In Wisconsin the county board of each county with a population of 500,000 or more is authorized to regulate the discharge of radioactive materials into the open air. 8 The problem of radioactive waste disposal has received administrative attention in the health department regulations of Connecticut, 9 Michigan, 10 New York, 11 Pennsylvania, 12 and Texas. 13 The above mentioned statutes and regulations are discussed in greater detail in Chapter V of this Part.

1. Water Pollution Regulation

Liquid radioactive wastes may result from several possible operations, including using water as a reactor coolant, 14 processing radioactive materials by chemical means, and using radioisotopes in industry and laboratories. 15 If these wastes find their way into streams, they may become potential health hazards by invading domestic water supplies or by affecting fish or vegetation.

3 Id., §9.
5 Mass. Ann. Laws c. 111, §5B.
6 N.Y. Public Health Law §201(1)(s).
7 Ore. Laws 1957, c. 399, §3.
9 Conn. Sanitary Code c. III, §181-1-287, §M.
13 Regulations on Radiation Exposure, Texas Dept. of Health, §14.
14 Water used as a coolant becomes contaminated with radioactivity, creating a form of water pollution. At the Hanford AEC installation the water is held in a basin to permit decay of most of the radiation picked up by the soluble salts in the water before it is returned to the Columbia River. AEC, "Handling of Radioactive Wastes in the Atomic Energy Program," 7 (1951).
15 Id. at 15-17.
Because pollution of streams and lakes from sewage and industrial wastes has become a very serious problem, statutes regulating water pollution have been enacted in most states. Water pollution boards or commissions, often associated with the state health departments, have been created by many of the states covered by this study. Some of the boards are given administrative discretion to determine what constitutes "pollution." Some statutes apparently define industrial wastes broadly enough to encompass radioactive wastes. Many states require that permits be obtained from the water pollution board before wastes of any kind may be discharged into waters of the state. Moreover, nearly every state has a statute which absolutely prohibits the discharge of "harmful" or "poisonous" substances into the waters of the state. In the event that deleterious substances likely to injure fish or wildlife are discharged into waters, conservation laws may be involved. Criminal sanctions may attach, or perhaps permits from conservation commissions may be necessary.

Solid radioactive wastes include the products of fission taken from atomic reactors together with such items as contaminated clothing, contaminated metals used as equipment, pipes, or shielding, contaminated buildings, and residues from the incineration of radioactive wastes. The control of many of these hazards lies within the sphere of state agencies having jurisdiction over matters of health and safety. However, several statutes, notably those of California, Ohio, and Texas, cover industrial waste disposal irrespective of whether water pollution is involved.

Because of the differences in the regulatory pattern of the ten states examined in this study with respect to the regulation of industrial waste disposal, water pollution, and the role of the conservation department, a state-by-state analysis will again be necessary.

a. New York

In 1949 New York enacted a rather comprehensive program of water pollution control. The Water Pollution Control Board, created within the Department of Health, is given wide administrative discretion with respect to fixing standards of water purity, the classification of various waters, etc. A general prohibition against pollution makes it unlawful to discharge any organic or inorganic matter into waters of the state that will cause or contribute to a condition in contravention of standards adopted by the board.

---

16 N.Y. Public Health Law §1209.
17 Id., §1220.
A significant feature of the New York statute is the licensing power granted to the board. Subject to a few minor exceptions, it is necessary to obtain a permit from the board before any person may:

(a) make or cause to make any new outlet for the discharge of sewage, industrial waste or other wastes, or the effluent therefrom, into the waters of this state, or

(b) construct or operate and use a new disposal system for the discharge of sewage, industrial waste, or other wastes or the effluent therefrom, into the waters of the state. . . . 18

"Industrial waste" is defined as: "any liquid, gaseous, solid or waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources, which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards adopted as provided herein." 19

In addition to the license which must be obtained from the Water Pollution Control Board and even though the Commissioner of Health is a member of the board,20 it will probably be necessary for businesses utilizing nuclear energy also to obtain the written permission of the Commissioner of Health himself.21 On this point the New York statute provides:

No person, corporation . . . shall place . . . or cause to be discharged into any waters of this state, in quantities injurious to the public health, any . . . substance, chemical or otherwise, or any refuse or waste matter, either solid or liquid, from any . . . shop, factory, mill or industrial establishment; unless express permission to do so shall have been first given in writing by the commissioner. . . . 22

This permission may be given to an industrial establishment "whenever the public health and purity of the waters shall warrant it," subject to conditions as the public health may require.23 Discharges into certain waters are absolutely prohibited.24 The provisions, requiring the permission of the Commissioner of Health and prohibiting the discharge

18 Id., §1230.
19 Id., §1202(e).
20 Id., §1205.
21 Id., §1232 indicates that in certain cases permission of the Department of Health is not required, but this is only true when a permit is not required from the Water Pollution Control Board under §1230(4).
22 Id., §1150(1).
23 Id., §1161(1).
24 See id., §§1151 to 1155.
of waste into certain waters, are, however, currently effective only until April, 1959.\(^{25}\)

In addition to the public health statutes, the New York conservation statutes prohibit the discharge of any deleterious or poisonous substance into the waters of the state which may be injurious to fish life. This is an absolute prohibition; \(i.e.,\) no administrative authority to permit deviations is conferred. Violation constitutes a public nuisance and is subject to abatement and possible criminal penalties.\(^{28}\)

b. Pennsylvania

Pennsylvania also has adopted a comprehensive program of water pollution control, in many respects similar to that of New York. Under a water pollution control act enacted in 1937, a Sanitary Water Board, a part of the Department of Health, is charged with the administration of the program.\(^{27}\) "Industrial waste" includes any liquid, gaseous, or solid substance which results from any industry and which causes pollution.\(^{28}\) The Sanitary Water Board is empowered to determine when pollution exists and to establish standards to define pollution.\(^{29}\)

As in New York, the Pennsylvania statute provides that it is unlawful to "erect, construct or open" any establishment which in its operation results in the discharge of industrial wastes causing pollution unless a permit is first obtained from the board approving the proposed process for treatment of the wastes.\(^{30}\) All plans for the proposed construction of a plant or process to treat the wastes must be submitted to the board before construction.\(^{31}\) This requirement of advance consultation with the Sanitary Water Board, before construction involving potential pollution is initiated, is burdensome but advantageous from both the standpoint of the public and that of the operator.\(^{32}\)

A Pennsylvania conservation statute provides that no person shall allow any substance of any kind or character which is deleterious, destructive, or poisonous to fish to be discharged into any waters of the

\(^{25}\) Id., §1168.
\(^{26}\) N.Y. Conservation Law art. IV, §180.
\(^{28}\) Id., §691.1.
\(^{29}\) Ibid.
\(^{30}\) Id., §691.307.
\(^{31}\) Id., §691.308.
state unless it is shown to the satisfaction of the Board of Fish Commissioners that every reasonable and practicable means has been taken to abate and prevent the pollution of the water. This prohibition is somewhat less severe than that set forth in the New York conservation statutes.

c. Ohio

In 1951 Ohio passed a comprehensive water pollution control act patterned on the Pennsylvania statute. Like the New York and Pennsylvania water pollution boards, Ohio's Water Pollution Control Board is within the Department of Health. The board has power to issue and deny permits for the discharge of industrial wastes into waters of the state; and in order to avoid a possible determination after installation that an operation is polluting the waters of the state, it is necessary to obtain a permit in advance from the board.

As in New York, it appears necessary to obtain the consent of the Director of Health before discharging industrial wastes into the waters of the state, despite the fact that he is also the chairman of the Water Pollution Control Board. The Department of Health is given general jurisdiction over the disposal of industrial wastes, and it is necessary to obtain the approval of this department relative to the manner of disposal of these wastes. It is important to note that the supervisory power is not confined to disposal of wastes into waters, as it is in New York and Pennsylvania, but includes disposal in any manner. Furthermore, the department is given specific power to prevent pollution by adopting and enforcing regulations relative to the discharge of industrial wastes into waters of the state. It also has the power to approve processes and plans for the treatment of such wastes.

The Ohio statutes also create a Water Resources Board in the Department of Natural Resources. This board has power to prevent the

---

84 See 12 Ohio St. Law J. 376 (1951), for a brief analysis of this act.
85 Ohio Rev. Code §6111.02.
86 Id., §6111.03(1).
87 "Pollution" is defined very broadly, id., §6111.01(A).
88 Id., §6111.04.
89 Id., §6111.02.
90 Id., §§3701.19, 3701.20.
91 Id., §3701.21.
92 Id., §3701.59.
contamination of underground waters, but its principal authority is concerned with water conservation, use, and supply.

Ohio has established still another sanction for the protection of the state's waters. A 1948 opinion of the Attorney General of Ohio indicates that when the habitat, food supply, and other environmental conditions of fish are threatened with injury or destruction by pollution of waters of the state, the Director of Natural Resources may bring an action for an injunction or for damages. The statute upon which such an action would be based provides that no person shall corrupt or render unwholesome or impure a watercourse, stream, or water.

Furthermore, various types of control districts may be formed under Ohio statutes to regulate nearly every conceivable aspect of water usage. At least three kinds of districts have control over the discharge of wastes and water pollution: conservancy districts, sanitary districts, and regional water and sewer districts. If any of these districts are in existence and embrace an area considered for the location of an atomic energy generating plant, it is essential that the board of directors or trustees be consulted and any necessary approval obtained from them.

d. Wisconsin

Like New York and Ohio, Wisconsin has a dual set of controls over water pollution. The State Board of Health is vested with general jurisdiction over the waters of the state, and it is necessary to obtain the approval of this board before using streams to dispose of industrial wastes. The State Health Officer is also a member of the Committee on Water Pollution. This committee, having general jurisdiction over water pollution, may require the submission and approval of plans for the installation of systems and devices for disposing of industrial

---

43 Id., §1521.04(F).
44 Id., §1521.04.
46 Ohio Rev. Code §1501.01.
47 Id., §3767.13.
48 Id., §§6101.01 et seq.
49 Id., §§6115.01 et seq.
50 Id., §§6119.01 et seq.
51 Wis. Stat. (1957) §144.03.
52 Id., §144.04.
53 Id., §144.52.
It is unlawful to deposit any acids, wastes, or refuse arising from the manufacture of articles of commerce or any other substance deleterious to fish life into any of the waters of the state, unless it is done in compliance with the orders of the Committee on Water Pollution. The constitutionality of this regulatory scheme has been attacked on the ground that parts of the statute are indefinite and uncertain, there being no standard or guide set forth to govern the actions of the Committee on Water Pollution. The attack failed, and the statute was sustained by the Wisconsin Supreme Court.

The powers of the State Board of Health and the Committee on Water Pollution overlap, but these agencies apparently cooperate and issue joint orders. In 1944 a joint order was held to be ultra vires and hence invalid on the ground that different modes of judicial review were authorized for each of the two agencies. However, a year later the legislature promptly remedied this defect by the addition of a statutory provision expressly permitting the issuance of a joint order. Thus, the concurrent nature of the jurisdiction of the Health Department and the Committee on Water Pollution is expressly recognized in Wisconsin, whereas the situation in New York and Ohio is somewhat more uncertain in this respect. However, the Wisconsin statutes retain individual jurisdiction for both the Committee on Water Pollution and State Board of Health when either or both agencies assume jurisdiction in a situation involving pollution.

e. Illinois

In 1951 Illinois passed a new comprehensive water pollution statute. A Sanitary Water Board, with extensive regulatory powers, was created, together with a Water Pollution Control Advisory Council. The statutory definition of “industrial waste” is nearly identical with the New York definition, quoted above. But it is interesting to note that

---

64 Id., §144.53.
65 Id., §29.29.
66 State ex rel. Martin v. City of Juneau, 238 Wis. 564, 300 N.W. 187 (1941). Other constitutional arguments made, including improper delegation of legislative and judicial powers to both the State Board of Health and the Committee on Water Pollution, were likewise rejected.
69 See id., §144.535.
70 Ibid.
72 Id., §145.3(e).
Illinois attempts a broad definition of "pollution" whereas New York leaves the establishment of standards to the discretion of the Water Pollution Control Board.

It is necessary to obtain a permit from the Illinois Sanitary Water Board before constructing, installing, or operating any establishment which will cause the discharge of wastes into the waters of the state.

In addition, river conservancy districts may be organized under the Illinois statutes for the purpose of preventing water pollution. However, it is provided that the authority of the Sanitary Water Board shall not be superseded, which would seem to mean that if a permit is obtained from the Sanitary Water Board to discharge waste into a stream, the trustees of a river conservancy district would have no power to interfere.

Furthermore, sanitary districts, primarily concerned with sewage problems, may be organized under various Illinois statutes. The board of trustees of a sanitary district has authority to prevent pollution of any waters from which any city or town obtains its water supply, and any person proposing to discharge industrial waste within a sanitary district must obtain a permit from the trustees of the district.

Finally, the Department of Conservation has general authority to take measures to prevent water pollution to preserve fish and game and to cooperate with other departments to prevent water pollution. Another statute empowers the attorney general to bring an action to recover the reasonable value of any aquatic life destroyed by pollution of waters of the state. Moreover, it is a public nuisance to corrupt or render unwholesome or impure the waters of any stream to the prejudice of others.

f. California

A somewhat different water pollution regulation scheme is in effect in California. In 1949 the Dickey Water Pollution Act was passed which creates a State Water Pollution Control Board and nine re-

---

63 Id., §145.2(a).
64 Id., §145.11.
65 Id., c. 42, §§383 et seq.
66 Id., c. 42, §409.
67 Id., c. 42, §§299, 319.1, 320.
68 Id., §326aa.
69 Id., §326bb(3).
70 Id., c. 127, §63a(6).
71 Id., c. 56, §160.
72 Id., c. 38, §466.
Regional water pollution control boards. The state board is concerned only with formulation of policy, research, and administration of the financial aspects of water pollution, whereas the regional boards are charged with the abatement, prevention, and control of water pollution and nuisances. It is the appropriate regional board which must approve any proposed discharge of industrial waste and which prescribes requirements with respect to the treating of these discharges. Each regional board also has power to investigate any source of water pollution or nuisance within its region and to order an abatement thereof.

The act was designed to coordinate the actions of various state agencies regulating water pollution. While power to regulate water pollution was not taken away from other state agencies, it is no longer necessary to secure a permit from the State Health Department in order to dispose of wastes, and this would seem to be a thoroughly worthy achievement.

The California Water Pollution Act contains the usual definitions which are substantially similar to those of the other states discussed above, except that the definition of "contamination" is somewhat unique in its breadth and scope:

"Contamination" means an impairment of the quality of the waters of the State by sewage or industrial waste to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease. "Contamination" shall include any equivalent effect resulting from the disposal of sewage or industrial waste, whether or not waters of the State are affected.

The matter of "contamination" is not mentioned elsewhere in the Water Pollution Act. However, the Health and Safety Code employs definitions identical to those of the Water Pollution Act, and that code prohibits the discharge of industrial waste which will result in contamination, pollution, or nuisance. Contamination is also made a crime

74 Id., §§13022 to 13024.
75 Id., §§13052, 13063.
76 Id., §13054.
77 Id., §§13055 to 13064.
78 Id., §13000.
82 Id., §5411.
83 Id., §5461.
and the Health Department is charged with the abatement of any contamination, although pollution and nuisance are referred to the appropriate regional water pollution board for action.

Moreover, the California statutes make it unlawful to cause any substance or material deleterious to fish, plant life, or bird life to pass into waters of the state of California. The Fish and Game Commission is required to report any condition of pollution to the appropriate regional water pollution control board.

g. New Jersey

New Jersey has adopted a unique pollution control system. It has not created a specific water pollution board to regulate pollution. Rather, the statutes leave this matter to the State Department of Health. Sprinkled liberally throughout the statutes are provisions which prohibit the discharge of any kind of polluting matter into the waters of the state. It is necessary to obtain the consent of the State Department of Health before any "harmful" or "deleterious" matter may flow into the waters of the state.

Moreover, the person responsible for the operation of any "factory, workshop or place for the manufacture of materials or goods" must obtain a written permit from the Health Department before it may be established in any watershed in the state above the point at which any public supply of potable water is taken. The permit is required even though no discharge of wastes into the waters of the state is contemplated. The Health Department must also be furnished with information concerning any processes established or intended to be established for the purification or treatment of industrial wastes.

Industrial establishments in New Jersey must also give consideration to the possible existence of sanitary sewer district authorities. These may be established by any first- or second-class county when a stream flowing through the county is subject to pollution. "Sewage" is defined to include industrial wastes and any other matter having a tendency

84 Id., §§5412, 5460.
85 Id., §§5413.
86 Cal. Fish & Game Code §481 (1944).
87 Id., §481.5.
89 Id., §58: 12-3.
90 Id., §58: 10-7.
91 Id., §58: 10-17.
92 Id., §40: 36A-1.
to pollute streams and watercourses. A 1953 amendment prohibits the discharge of any polluting matter into the waters of any stream or river included within the sewer district established by a county. Finally, New Jersey has made it a crime to discharge into waters of the state any deleterious or poisonous substance which is injurious to or disturbs the habits of fish.

h. Michigan

In Michigan water pollution is subject to regulation by the Water Resources Commission. The commission is empowered to establish pollution standards for the various bodies of water in the state and has authority to "make regulations and orders restricting the polluting content of any waste material or polluting substance discharged or sought to be discharged into any lake, river, stream, or other waters of the state." The jurisdiction of the commission extends to both surface and underground waters as well as the Great Lakes. It is unlawful to discharge any substance which is harmful to the public health, fish, and wildlife, or to lawful enterprises.

The statutes make no provision for obtaining a permit, but undoubtedly industrial managers should consult the Water Resources Commission when an industry plans to use water from a stream or lake or to discharge wastes into such waters.

In Michigan the Conservation Commission is given general power to prevent water pollution and to encourage the propagation of game and fish. Again, there seems to be no requirement that a license be obtained; rather, it is made a violation of the conservation statutes to discharge wastes into the waters of the state if they will tend to "stupefy, injure or kill" any fish. The State Health Department's broad powers over problems of general public health also extend to matters of water pollution, and therefore, as in other states, overlapping jurisdiction in problems of water pollution presents unusual problems for atomic energy industries.

97 Id., §3.525.
98 Id., §3.522.
99 Id., §3.526.
100 Id., §13.3.
101 Id., §13.1671.
Texas

Texas has not established an administrative agency with authority to regulate water pollution, although in 1953 a five-member water pollution council, without regulatory powers, was created. The function of this council is to collect and disseminate information relating to water pollution, its prevention, and abatement.

However, water pollution is made a crime in Texas. The Penal Code defines pollution as rendering the water unfit "for one or more of the beneficial uses for which such water was fit or suitable prior to the introduction of such substance, material, or thing," or is detrimental to public health, game, birds, fish, etc. Insofar as fish are affected by pollution, enforcement power is given to the Game and Fish Commission.

Moreover, the State Board of Health has power to enjoin water pollution, and it is unlawful to store, dispose of, or deposit wastes which will pollute surrounding land or contaminate well waters to the extent of endangering public health.

The Texas statutes also provide for the establishment of several types of districts which relate to various aspects of water use, supply, and control. These districts are normally established by counties or a combination of counties. "Water Control and Improvement Districts" may be organized to protect, preserve, and restore the purity and sanitary condition of water and to control, process, and dispose of industrial wastes. "Water Control and Preservation Districts" may be organized to control and preserve the purity of the waters within the district. Other types of districts authorized in Texas include "Underground Water Conservation Districts," "Fresh Water Supply Districts," "Levee Improvement Districts," "Drainage Districts,"

\[102\] Tex. Laws 1953, H.B. No. 448, c. 353.
\[104\] Tex. Penal Code art. 698b.
\[105\] Ibid.
\[107\] Id., art. 4477-1, §4(c).
\[108\] Id., arts. 7880-2, 7880-3.
\[109\] Id., art. 7880-3a.
\[110\] Id., art. 7809.
\[111\] Id., art. 7880-3c.
\[112\] Id., art. 7881.
\[113\] Id., art. 7972.
\[114\] Id., art. 8097.
"Conservation and Reclamation Districts," 115 and "Navigation Districts." 116 Industrial planners must consult the directors of these districts, if they exist in the county, in connection with the planning of an industry which may use water in any way.

j. Missouri

Missouri adopted a statute in 1957 which establishes a program of water pollution control similar to those of New York, Pennsylvania, and Ohio. 117 As in those states, the principal feature of the program is the establishment of a Water Pollution Board, organized within the Department of Public Health and Welfare, which is empowered to issue and deny permits for the disposal of wastes into waters of the state. The statute directs that "No person, without first securing from the board a permit, shall construct, install or modify any system for disposal of sewage, industrial wastes, or other wastes . . . when the disposal . . . constitutes pollution as defined in this act." 118

The Water Pollution Board may require the submission of such plans and specifications as it deems relevant in connection with the issuance of permits and is empowered to determine whether or not the proposed discharge will "cause a condition contrary to the public interest." 119 The board is also given the power to determine when pollution exists and to establish standards of water purity for any waters of the state. 120

The Missouri statutes also contain a provision prohibiting the discharge of any deleterious substance which is injurious to fish life into any stream in the state; however, the State Conservation Commission has authority to grant exceptions to industries. 121

k. Conclusion

Although the statutory and regulatory pattern concerning water pollution varies from state to state, it is clear that atomic energy industries will be required to meet some rather positive standards if waste products are to be discharged into the waters of any state. In fact, close supervision of the disposal of wastes seems imperative in the public interest

115 Id., art. 8194.
116 Id., art. 8198.
118 Id., §204.030.
119 Ibid.
120 Ibid.
because both the toxic and radioactive nuclear wastes are highly dan-
gerous to the public health particularly where the streams constitute a
source of water for human consumption.

It should be noted that under certain types of statutes, some atomic
energy activities may not be regulated at the present time under statutes
governing water pollution. For example, where the statutes govern
only industrial activity, research laboratories and hospitals may not be
subject to regulation. Nonetheless, use of radioactive materials and
their disposal through conventional sewerage and drainage systems may
so pollute bodies of water as to constitute a definite health hazard.
Therefore, in those states where discharges of certain radioactive ma-
terials into state waters are not controlled under present statutes,
amendatory legislation appears advisable and will doubtless be forth-
coming as soon as the hazards become known in legislative halls.

The foregoing review of the statutes reveals that water pollution is
in many states subject to regulation by several different agencies. This
duplication of effort and overlapping of jurisdiction raises once again
the problem of administrative conflicts. Obviously, coordination of the
several health and safety regulations affecting atomic energy enter-
prises is desirable. This coordination can be achieved either by coopera-
tion among the agencies or by transferring all atomic energy health
and safety regulatory powers including control of water pollution to one
agency. The latter course has much to be said in its favor, especially
if all types of specialization can be represented within the regulatory
agency. In the absence, however, of the creation of a single authority,
persons desiring to engage in atomic energy activities must consult with
all regulatory agencies exercising health and safety powers. Certainly
they should encourage cooperative efforts among those agencies.

2. Regulation of Air Pollution

Several types of operations which utilize atomic energy may produce
radioactive particles which will create a hazard if discharged into the
air. Radioactive gases may result from air-cooled reactor operations,
chemical processing operations, refining operations of uranium ores,
laboratory uses of radioisotopes, and incineration of radioactive wastes,
byproducts, or contaminated apparel or materials. To prevent dan-

active gases, thus causing them to be diluted with uncontaminated air.\(^\text{123}\)

In addition, the Commission has engaged in meteorological surveys and has instituted a program of area monitoring in the vicinity of installations such as Brookhaven, where air-cooled reactors are in operation.\(^\text{124}\)

Insofar as employees may be adversely affected by the presence of radioactive gases in the place of employment, the powers of public utility commissions, labor departments, and health departments will be involved. However, if the atmospheric contamination extends outside the installation itself the public health may be endangered. Radioactive particles may be inhaled or deposited on plants which may in turn be eaten by animals or people. Notwithstanding the use of high stacks and the processing of the gases in connection with air-cooled reactors or chemical operations, adverse weather conditions may render hazardous otherwise satisfactory operations. Under the general authority granted to various state and local health agencies, regulations may be promulgated which establish limits for permissible contamination of the atmosphere from smoke and other foreign substances.\(^\text{125}\) Municipalities also have broad powers to pass ordinances regulating matters of air pollution, such as smoke emission. These powers can and doubtless will be used to regulate contamination by radioactive gases.

In recent years, because of the "smog" conditions prevailing in many industrial communities, interest in air pollution control has grown. Because it was felt that the prevention and reduction of air contamination could not be handled adequately by local legislative bodies,\(^\text{126}\) the California legislature in 1947 passed a comprehensive statute providing for the creation of air pollution control districts. In 1954 the New Jersey legislature also enacted comprehensive legislation for the control of air pollution.\(^\text{127}\) Detailed examination of the California and New Jersey statutes seems desirable.\(^\text{128}\)

Under the California statute, each county is declared to be an air

\(^\text{123}\) Id., at 7-8.

\(^\text{124}\) Id., at 12-13.

\(^\text{125}\) In Bd. of Health of Weehawken Tp. v. N.Y. Central R. Co., 4 N.J. 293, 72 A.2d 511 (1950), the defendant railroad was charged with the violation of a smoke ordinance passed by the Board of Health of the Township of Weehawken by the operation of its power plant. The New Jersey Supreme Court upheld a conviction under this ordinance, holding that local boards of health may regulate and control air pollution in the interest of public health and welfare by barring the excessive emission of smoke.


\(^\text{127}\) N.J. Laws 1954, c. 212.

\(^\text{128}\) In 1953 the Illinois legislature created a commission to study air pollution and recommend regulatory legislation. Ill. Laws 1953, S. 204.
pollution control district. Before a district can function, however, the board of supervisors of the county must hold a public hearing to determine the need of such a district. The board must find that two conditions exist prior to adopting a resolution activating the district: (1) that the air in the county is polluted with air contaminants so that it is injurious to health, or is an obstruction to the free use of property, or is offensive to the senses of a considerable number of persons; and (2) that it is not practicable to rely on the enactment and enforcement of local county and city ordinances to prevent air pollution. "Air contaminant" is defined to include "smoke, charred paper, dust, soot, grime, carbon, noxious acids, fumes, gases, odors, or particulate matter, or any combination thereof." Although the definition does not expressly include radioactively contaminated air, it appears to be sufficiently broad to encompass this type of contamination. If a district is authorized to function, the following statutory prohibition is operative:

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

Any violation of this provision may be enjoined or punished criminally. It is expressly provided, however, that the legislature does not intend to occupy the entire field or to supersede any local rules and ordinances imposing higher standards.

The county board of supervisors constitutes the air pollution control board, but it is required to appoint an air pollution control officer. The air pollution control board is granted broad rule-making authority, including power to make and enforce orders directing the reduction of the amount of air contaminants and power to require that

130 Id., §24203.
131 Id., §24205.
132 Id., §24208.
133 Id., §24243.
134 Id., §§24252, 24253.
135 Id., §§24247, 24248.
136 Id., §24220.
137 Id., §24222.
138 Id., §24260.
139 Id., §24262.
a permit be obtained from the air pollution control officer before a structure is built or a contrivance is operated which may produce air contaminants. This permit may be withheld unless it is shown that air contamination will not result. Any applicant for or holder of a permit may be required to furnish information disclosing the nature, extent, quantity, or degree of air contaminants which are or may be discharged from any source. However, the air pollution control board or a court, after hearing, may grant variances either from the regulations or from the statute itself when “necessary.” The board may “exercise a wide discretion in weighing the equities involved,” and it may prescribe different requirements applicable to certain industries or persons.

It may be concluded that California has a rather complete and far-reaching system of regulating the air pollution, and since the discharge of radioactive particles is in all probability included in the definition of air contaminants, careful compliance by atomic energy users will be necessary if the contemplated use involves a discharge of radioactive gases into the atmosphere.

In contrast to California, the problem of air pollution in New Jersey is handled on a state rather than a local basis. In 1954 the New Jersey legislature created an Air Pollution Control Commission within the Department of Health. The commission has power to promulgate rules and regulations controlling or prohibiting air pollution throughout the state. “Air pollution” is defined as “the presence in the outdoor atmosphere of substances in quantities which are injurious to human, plant or animal life or to property, or unreasonably interfere with the comfortable enjoyment of life and property throughout the State . . . and excludes all aspects of employer-employee relationship as to health and safety hazards.” Clearly, release of radioactive gases and substances into the atmosphere falls within this broad definition. Persons engaged in operations which may result in air pollution may be required to register and file reports containing information

140 Id., §24263.
141 Id., §24264.
142 Id., §24269.
143 Id., §24291.
144 Id., §24297.
145 Id., §24296.
146 N.J. Laws 1954, c. 212.
147 Id., §9.
148 Id., §2.
“relating to location, size of outlet, height of outlet, rate and period of emission and composition of effluent. . . .”

The New Jersey Air Pollution Control Commission is authorized to establish county air pollution control associations to which rules of strictly local application must be submitted for discussion and report. However, the county associations act only in an advisory capacity.

Rules and regulations of the commission are enforced by the State Commissioner of Health and the Department of Health may seek injunctive relief to prevent violations, and fines may be imposed for continuing violations.

Although none of the other states covered by this study has comprehensive air pollution legislation, it should be noted that several cities have adopted ordinances concerning air pollution. However, some of the ordinances refer only to smoke abatement, and they probably will be inapplicable to radioactive gases discharged into the air.

Conclusion: State agencies created especially for the control of air pollution are not yet as commonly established as are agencies for the control of water pollution. However, a definite trend in the direction of the creation of such agencies has resulted largely because of the increasing recognition of the “smog” problem in industrial areas. Moreover, in many instances existing powers of state departments of health are sufficiently broad to embrace control of air pollution. Therefore, atomic energy enterprises which involve the release of radioactive gases, vapors, and dusts into the atmosphere can expect regulation by some state agency and perhaps by a local government agency as well, depending, of course, upon location of the plant facilities.

Because the release of large amounts of radioactive materials into the atmosphere may be dangerous to surrounding populations and property, strict precautionary safety measures are definitely indicated, and, indeed, industry will no doubt exert extraordinary efforts in this direction. States which do not have agencies possessing authority to control

---

140 Id., §8.
150 Id., §§11, 12.
151 Id., §§11 et seq.
152 Id., §17.
153 Id., §19.
154 In Wisconsin counties having a population of 500,000 or more are specifically authorized to regulate air pollution by ordinance. Wis. Stat. (1957) §59.07(53).
155 For a good discussion of city ordinances, see “Smog—Can Legislation Clear the Air?” 1 Stan. L. Rev. 452 (1949). For a recent conviction under New York City air pollution control authority, see People v. Tatje, 121 N.Y.S.2d 147 (1953). From this case it appears that in 1952 the city created a Department of Air Pollution Control.
the discharge of dangerous substances into the atmosphere will no doubt be so equipped as soon as the legislature is informed of the existence of the problem. In states which have agencies with regulatory power as yet unexercised, the necessary investigation and study of air pollution problems will doubtless commence at an early date so that rules and regulations can be promulgated before atomic energy activities cause an extra-hazardous public health problem.

3. Nuisances

Thus far in this study, primary emphasis has been placed on state regulatory agencies which have been given statutory powers to regulate some of the aspects of peaceful uses of atomic energy. Now, however, we should turn briefly to an examination of the pertinent legal principles of the law of nuisance since under these principles some regulation of uses of atomic energy will be imposed by courts acting either at the instance of private individuals or of public officials. Even though applicable zoning ordinances and health regulations are complied with, a type of judicial zoning regulation may result from industrial operations which occasion harm or discomfort to individuals in the vicinity of the installation. Since radiation hazards may, and at the outset probably will, be greatly feared by those who live near plants utilizing atomic energy, account must be taken of the fact that such persons may institute legal actions to restrict operations thought likely to create these dangers. The law of nuisance will afford a basis for this type of action.

It has been said that "There is perhaps no more impenetrable jungle in the entire law than that which surrounds the word 'nuisance.'"\(^{158}\) It is obvious that a subject so vast and confused cannot be examined in detail in this study. We can, however, suggest some of the problems that may arise under the application of the fundamental propositions which are a part of the law of nuisance. Abundant authority is available, but most cases provide little guidance since each case turns largely on its own fact situation. However, cases involving power plants and gas plants may have some special significance and will therefore be noted.

Nuisances are usually divided into two somewhat unrelated and separate categories: public nuisances and private nuisances. As will be seen, these involve different ideas and require separate discussion.

\(^{158}\) Prosser, Torts 549 (1941).
a. Public Nuisances

Public nuisances are minor criminal offenses arising out of acts which cause interference with the public health, safety, morals, comfort, or convenience. To be considered public, the nuisance must affect an interest common to the general public in the exercise of public rights, rather than rights belonging and peculiar to one or more individuals.

Public nuisances are often defined by statutes, but definitions so given are often couched in very general terms. Violations of water pollution, smoke, or zoning ordinances are often made public nuisances. Statutes or ordinances also frequently declare that establishments which emit offensive odors are public nuisances. The New York statutes define a public nuisance as any act or omission which, among other things, "1. Annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons. . . . 4. In any way renders a considerable number of persons insecure in life, or the use of property." These provisions have been held to be declaratory of the common law. Under the New York type of statute, the operation of an atomic energy establishment which discharges radioactive materials into the streams or gases into the atmosphere might be held to annoy or endanger the comfort, health, or safety of a considerable number of persons and hence to violate the statute. However, a public nuisance may be held privileged if it is authorized by the legislature. The crucial question, of course, is what conduct has been so authorized. Another defense that may be effective in certain unusual circumstances is the fact that the public has an overriding interest in the activity, such as in essential war production. In such event, the defendant is relieved of criminal though not civil liability. Remedies available to the state are either injunction or imposition of fines or other penalty. If a private individual can show special damage to himself, he may have a cause of action for injury.

157 Id. at 566-573 (1941).
158 Id. at 568.
159 See Anno., "Validity, construction, and application of statute or ordinance declaring plant or establishment which emits offensive odors to be public nuisance," 141 A.L.R. 285 (1942).
160 N.Y. Penal Code §1530.
164 Prosser, Torts 569 (1941).
b. Private Nuisances

A private nuisance is created when an unreasonable interference is inflicted upon an individual's use or enjoyment of land. There are two principal kinds of such interferences: (1) actual physical injury to land, such as damage to a structure caused by vibration or blasting, pollution of water, or injury to buildings or plant life resulting from the discharge of harmful substances, and (2) disturbance of the comfort or convenience of the occupant of land, such as by unpleasant or harmful odors or gases, or storage in the vicinity of highly dangerous materials. An important feature of any liability incurred as a result of acts involving such interferences is the fact that the fault of the actor is immaterial; i.e., liability may result whether the act is intentional, negligent, or entirely without fault. In short, nuisance giving rise to liability is a type of damage or injury, rather than a type of conduct. Most of the litigation involving private nuisance has dealt with the broad question of the reasonableness of the defendant's conduct, and the issue is essentially one of resolving the conflicting interests of landowners. In a sense, therefore, the law of private nuisance becomes a process of judicial zoning in which the nature of the locality and the public interest involved are two important factors weighed by the courts.

The two types of legal relief available against a private nuisance are an action at law for damages and injunctive relief in equity. Under the latter remedy, a court may in rare instances completely restrain the operation of a plant which creates the nuisance. More often the court will require that the plant be shut down unless additional equipment is installed or care taken to eliminate the nuisance. In contrast to the public nuisance it should be noted that legislative authorization, such as the grant of a franchise or permit by a branch or agency of a government, does not create a privilege in favor of a private nuisance, especially those that cause substantial injury, since this would amount to condemnation without payment of compensation. Neither is it any de-

165 Id. at 573-575.
166 Id. at 553-557.
167 Id. at 580.
168 Id. at 588.

fense that the best available devices or equipment are being employed in the operation of a plant since liability is not based on fault but arises from the injury itself.\textsuperscript{171}

Private individuals, normally adjoining landowners, have brought numerous actions against public utility companies both for damages and for injunctive relief. In a substantial number of cases relief by way of damages for nuisance has been allowed,\textsuperscript{172} but courts have been reluctant to enjoin the operation of such plants. In reaching such conclusions, reliance has been placed on such factors as the quasi-public character of the industries, the adequacy of the damage remedy, the nature of the area where the plant was located, the cost required to move the plant if enjoined, and the fact that the best available devices to prevent injury to adjoining landowners were being used.\textsuperscript{173}

The general principle that an equity court will weigh the advantage to be gained by the plaintiff against the injury suffered by the public before restraining the operation of an industry is said to be especially applicable in the case of public utilities.\textsuperscript{174} However, in a few instances, courts have temporarily restrained the operation of gas or electric power plants, by requiring that additional protective devices be installed and that the plant be shut down unless these are installed.\textsuperscript{175} For example, in \textit{Judson v. Los Angeles Suburban Gas Company} a decree enjoining the gas company “from conducting and operating the gasworks and manufactory . . . in such a manner as to cause or permit smoke, gases or offensive smells or fumes to be emitted therefrom or to be precipitated therefrom upon the property of the plaintiff” was affirmed.\textsuperscript{176} In \textit{Anstee v. Monroe Light and Fuel Co.} the gas company was perpetually enjoined from making further deposits of industrial waste that polluted neighboring soil, the gas company was required to alter its smokestack to abate a smoke nuisance, and in addition damages were awarded.\textsuperscript{177}


\textsuperscript{172} See cases collected in 37 A.L.R. 800 at 812-813 (1925).


\textsuperscript{174} 37 A.L.R. 800 at 802 (1925).


\textsuperscript{176} 157 Cal. 168, 173, 166 Pac. 581 (1910).

\textsuperscript{177} 171 Wis. 291, 177 N.W. 26 (1920).
In the light of these decisions, careful consideration must be given to the location, construction, and operation of industrial plants utilizing atomic energy, for conceivably such a plant could be partially or wholly restrained as a nuisance if injury to landowners resulted. Furthermore, because of the exceptionally dangerous character of atomic energy activities, a court would probably have less difficulty than in cases of conventional plants in holding the owners of an atomic energy plant liable for damages.  

**c. Conclusion**

Although a full development of the law of public and private nuisance is beyond the scope of this study, the foregoing brief mention of its ramifications suffices to show that it may serve in some instances as a regulatory device effectuated by the courts under common law principles. Since nuisance law is invoked only through litigation involving specific factual settings, it is impossible to draw any but the most general conclusions. However, so far as atomic energy plants are concerned, it is clear that both public officials and private persons may commence litigation with some likelihood of success, particularly if the atomic enterprise creates a hazardous or even an annoying condition in its vicinity. Atomic energy entrepreneurs undoubtedly will have to exercise exceptional prudence in selection of location especially since limited public knowledge of the subject coupled with the fears engendered by the mystery of atomic forces may easily precipitate troublesome litigation. Specific governmental authorization for a particular installation may provide a defense against the charge of committing a public nuisance, but the authorization will not provide a defense in respect to actions for private nuisance. Accordingly, sites embracing large exclusion areas well removed from populated centers seem advisable wherever possible, not only as a means of protection of the public against possible accidents, but also from the standpoint of avoiding monetary liability and regulation through court orders.

**B. Diversion of Waters**

If a nuclear reactor or other atomic energy plant utilizes large quantities of water, diverted from regular watercourses, an additional problem arises. Many states have enacted statutes which restrict the

---

178 See Part I of this volume.
179 The full-scale atomic power plant built at Shippingport, Pennsylvania, by the AEC and Duquesne Light Company employs water as a coolant.
diversion of water, and unauthorized diversion of substantial quantities thereof may constitute a public or private nuisance. Most of these statutes were enacted for other specific purposes; e.g., some of them are concerned with the building of dams or other obstructions in water-courses, with impeding the navigability of streams, with preventing the free passage of fish, or preserving water supply facilities. However, some of the language in these statutes may be broad enough to be applicable to the withdrawing of sizable quantities of water for industrial uses, even though it is subsequently returned to the body of water from which it is taken.

Obviously, states which are faced with the problem of water scarcity are more likely to regulate the use of waters than are states that have no such problem. In varying degrees five of the ten states surveyed in this study fall within this category.

Texas and California are among those western states which follow the law of "prior appropriation" with respect to water use. In these states it is necessary to obtain a permit from an appropriate state agency before water may be appropriated or diverted.\textsuperscript{180} These state agencies are given authority to reject an application if the use is detrimental to the public interest. Elaborate systems of priority are set up to obtain the most beneficial use from the available water.

New Jersey requires that a permit be obtained from the Division of Water Policy and Supply if, in designated areas, water is to be taken from subsurface or percolating sources in excess of 100,000 gallons per day.\textsuperscript{181} In Pennsylvania it is necessary to obtain a permit from the Water and Power Resources Board in order to change, diminish, or appropriate water from any body of water in the state.\textsuperscript{182} This permit is required regardless of whether the stream is navigable or non-navigable. It is expressly made unlawful to divert water for use in the generation of electricity without such a permit.\textsuperscript{183}

Ohio is another state in the category of those which regulate the use of water rather closely, but it appears to do so on a local level only, through the granting of permission for the organization of various types of local water control districts. In an area where one of these districts has been formed, it is necessary to obtain the consent of the

\textsuperscript{180} In Texas the permit must be secured from the State Board of Water Engineers, Tex. Civ. Stat. art. 7492. In California the permit is obtainable from the Dept. of Public Works, Div. of Water Resources, Cal. Water Code §1252.
governing board prior to making use of waters within the district. In addition, the board of directors of a conservancy district, the board of directors of a sanitary district, and the board of trustees of a regional water and sewer district are given the authority to "prescribe the permissible uses of the water supply provided by the district" by regulation.\textsuperscript{184}

The possible existence of various types of local water districts authorized by statute must be checked and taken into account before an industry may select any given plant location. As was noted above in the discussion of pollution, both Texas and Illinois authorize various types of local water districts. Those authorized by the Illinois statutes seem primarily concerned with pollution problems,\textsuperscript{185} but those authorized by Texas statutes are concerned as well with water usage.\textsuperscript{186} California, too, provides for the formation of various types of local water districts.\textsuperscript{187}

It may be necessary to secure the consent of a state agency when water from a particular stream is desired for industrial use. For example, the appropriation of water from the Delaware River is stringently controlled by at least three states: New Jersey, New York, and Pennsylvania,\textsuperscript{188} as well as an interstate agency, as will appear below in the discussion of interstate compacts.

Several different statutory objectives may be involved in the statutes under consideration. In several states it is deemed a public nuisance to obstruct or impede the passage of any navigable river or waters without legal authority.\textsuperscript{189} In others the statutes are apparently directed toward the maintenance of streams for navigable purposes. In at least two states there are provisions which prohibit the obstruction of streams so as to impede the free passage of fish.\textsuperscript{190} Exceptions may be made by

\textsuperscript{184} Ohio Rev. Code §6101.19(4) (conservancy districts); §6115.23(c) (sanitary districts); §6119.08(c) (regional water and sewer districts).

\textsuperscript{185} But see Ill. Stat. Ann. c. 111 2/3, §§223-228, which authorize the establishment of "Water Authorities." The board of trustees appears to have some control over water use, although the act seems directed primarily at pollution of underground waters.

\textsuperscript{186} See, e.g., Tex. Civ. Stat. art. 7622 (water improvement districts), art. 7880-3c (underground water conservation districts), art. 7881 (fresh water supply districts).

\textsuperscript{187} See, e.g., Cal. Water Code §§30,000 et seq. (county water districts); §§34,000 et seq. (California water districts).


MISCELLANEOUS REGULATION

the Conservation Department in Michigan. 191 The statutes of Missouri and Wisconsin seem primarily concerned with the construction of dams. 192 In Wisconsin the Public Service Commission has jurisdiction over the level and flow of water in navigable streams, 193 and water declared surplus by this commission may be diverted. 194 Missouri provides for a condemnation procedure to divert water when used in connection with the generation of electric power for sale to the public. 195 Whether this statute may be used for obtaining water for cooling purposes in an atomic reactor rather than in conjunction with hydroelectric power is uncertain.

Several unique Michigan statutes should also be noted. One provides that the stage of water in any watercourse shall not be altered without the written consent of the commissioner having jurisdiction over all the bridges and culverts passing over the watercourse. 196 Another statute gives authority to each county board of supervisors to "permit or prohibit the construction of any dam or bridge over or across any navigable stream." 197

Another possible source of restriction upon the use of streams stems from common law remedies available to riparian owners for an injury to their water rights. This type of remedy may take the form of either a suit for damages or an injunction against unreasonable use or pollution. 198 It is important also to note that statutes which outlaw or regulate water pollution in all probability do not displace the common law rights to abate pollution. 199

The existing statutes do not cover the possible problem of substantially increasing water temperature which may occur in the operation of a nuclear reactor.

Conclusion: The consuming of large quantities of water in an atomic energy enterprise, such, for example, as a water-cooled nuclear reactor, may in several states necessitate approval by state and local governmental authorities. Although the problems involved are not especially unique as applied to atomic energy industries, nevertheless state and

191 Ibid.
197 Id., §§5.344.
198 See, e.g., Note, 100 U. of Pa. L. Rev. 225 at 227-231 (1951), where Pennsylvania common law remedies are discussed.
local control of water diversion represents one more factor that must be considered by atomic entrepreneurs in determining the type of facility and its location.

C. Regulation of Radioactive Materials as Drugs or Dangerous Substances

The use of radioactive materials in medical therapy and industrial operations has increased rapidly and can be expected to continue to increase as new applications and better techniques are discovered. Since radioisotopes can be produced as byproducts of any type nuclear reactor, it is probable that many owners of nuclear reactors will find themselves engaged in the sale of radioactive materials to medical, research, and industrial consumers. As a result, two additional types of state regulation may be encountered: namely, regulation of sale of drugs and regulation of transportation of dangerous substances.

At least four types of state statutes exist which may have some application to the manufacture, sale, and use of radioisotopes in connection with the study and treatment of diseases. Since the California statute books contain all four of these types and since the scheme of regulation in California in respect to drugs and poisons is quite extensive, its statutes will be examined in some detail. Similar provisions in the statutes of the other nine states will be indicated, together with other pertinent provisions not found in the California statutes.

California, as well as the other nine states covered in this study, has a statute regulating the pharmacy profession which provides for the licensing of pharmacists and pharmacies and establishes a State Board of Pharmacy. In addition to regulating the sale of drugs at retail, the statute requires that any manufacturer of drugs obtain a permit from the State Board of Pharmacy. New York, Pennsylvania, Texas, and Wisconsin similarly require the registration of drug manufacturers. The California statute also states that "Except as otherwise provided in this chapter, it is unlawful for any person to manufacture ... any drug, poison, medicine or chemical ... unless he is a regis-

---


tered pharmacist. . . .” 203 However, since a corporation cannot be a registered pharmacist, this provision must mean that a manufacturer of drugs must either be a registered pharmacist or comply with the provision requiring that a manufacturer obtain a permit from the State Board of Pharmacy. Pennsylvania, Texas, and Wisconsin require the supervision of a registered pharmacist “or other qualified person” in the manufacture of drugs. 204 The State Board of Pharmacy is also given broad administrative authority to regulate the manufacture of drugs for the protection of the public. 205 In view of these statutes, it may be necessary for an atomic energy enterprise, if it produces byproduct radioisotopes to be used in medical diagnosis and therapy, to register with the state board of pharmacy and to comply with any applicable statutes or regulations governing the manufacture of drugs.

A second category of statutes which must be taken into consideration are the pure drug acts, many of them patterned after the Federal Food, Drug, and Cosmetic Act. These statutes commonly prohibit “adulteration” and “misbranding” of drugs. Elaborate statutory definitions of these two terms are set forth, and drug manufacturers are required to comply. 206 Another provision found in many of the pure drug acts relates to “new drugs,” and typically a new drug may not be sold unless it has been approved under the Federal Food, Drug, and Cosmetic Act or approved by the state board of pharmacy. 207

A third category of state statutes establishes special regulations for “dangerous drugs.” For instance, California statutes define a “dangerous drug” as any drug unsafe for self-medication. Certain specific drugs are listed as dangerous, with power given to the Board of Pharmacy to add others to the list. 208 Certainly many, if not most, radioisotopes would fall within this definition. Manufacturers of dangerous drugs must be registered with the Board of Pharmacy and keep a record of sales of such drugs to wholesalers, pharmacies, and laboratories. 209

205 See, e.g., the rule-making power granted to the California State Board of Pharmacy, Cal. Business & Professions Code §4009.
209 Id., §§4217, 4227. Wisconsin also has a statute regulating the sale of dangerous drugs. Wis. Stat. (1957) §151.07.
The fourth type of state statute which may have some significance to producers of radioisotopes is that relating to poisons. The California statute lists compounds and preparations which are deemed poisonous, and gives power to the Board of Pharmacy to add others to the schedule when required in the interest of public health.\textsuperscript{210} Other statutes define a poison as any drug, chemical, or preparation which is likely to be destructive to human life in quantities of sixty grains or less,\textsuperscript{211} or for some purposes any substance likely to be destructive of human life in quantities of five grains or less.\textsuperscript{212} These statutes typically require that specified labels be attached to the container containing the poisonous substances and that records be kept of their sale. The probable applicability of these statutes should be taken into account by concerns intending to market radioisotopes.

D. Transportation of Radioactive Materials

The transportation of radioactive materials may also be regulated by several federal, state, and local agencies. Although the Atomic Energy Commission apparently has power to regulate the transfer of radioactive materials, the Commission has subordinated its authority to the federal agencies having jurisdiction over the various types of carriers.\textsuperscript{213} As a result, the Interstate Commerce Commission, the Civil Aeronautics Board, the U. S. Coast Guard, and the Post Office Department have issued detailed regulations governing the transportation of radioactive substances under their authority to regulate transportation of "explosives and other dangerous articles."\textsuperscript{214} However, the authority of the federal agencies, other than the Post Office, is generally limited to interstate commerce so that matters of intrastate commerce are governed by state and local laws and regulations.

In each of the ten states studied, a state agency has general supervisory powers over the railroad and motor vehicle common carriers. Typically, common carriers are denoted "public utilities" and are subject to the jurisdiction of the public utility commissions. However, in


\textsuperscript{213} BNA, Atomic Industry Reporter 281.1.

\textsuperscript{214} For a compilation of the federal regulations, see AEC, Handbook of Federal Regulations Applying to Transportation of Radioactive Materials (1955).
some states the trucking industry is regulated by a separate agency. In California, Illinois, Michigan, Missouri, New York, Ohio, and Pennsylvania the public utility commissions have been granted sufficiently broad powers to establish health and safety standards for the transportation of radioactive materials by all types of common carriers.\textsuperscript{215} In New Jersey the Public Utilities Board has broad rule-making powers in respect to railroad safety,\textsuperscript{216} but the Commissioner of Motor Vehicles is given only a limited power in respect to the trucking industry to regulate the construction and equipment of vehicles.\textsuperscript{217} In Texas only the State Highway Commission seems to have sufficiently broad powers to issue regulations covering transportation of radioactive materials.\textsuperscript{218} In Wisconsin the Public Service Commission has jurisdiction over both railroads and motor vehicles, but its power to make rules and regulations covering procedures to be followed in transporting radioactive substances is not clear. For example, the commission is vested with power and authority to “supervise and regulate such common motor carriers in all matters affecting their relationship with the public . . . to the end that adequate service at reasonable rates shall be afforded.”\textsuperscript{219} The power to regulate health and safety matters is thus not expressly granted, but probably is implicit since it is made the duty of every common motor carrier to “furnish reasonable, safe and adequate service and facilities.”\textsuperscript{220} Similarly, in respect to railroads in Wisconsin, every railroad is directed to adopt “reasonably adequate safety measures and install, operate and maintain reasonably adequate safety devices for the protection of life and property.”\textsuperscript{221} But this general terminology is followed by a sentence authorizing the commission to require the installation of a block system. This probably limits the authority of the commission to regulate only those safety matters connected with equipment and practices in moving freight; the authority apparently does not extend to regulation of such matters as amount of material, packaging, warnings, etc.

Two statutes,\textsuperscript{222} enacted in New York and Pennsylvania, which are

\begin{itemize}
  \item \textsuperscript{216} N.J. Rev. Stat. (1937) §48: 2-23.
  \item \textsuperscript{217} Id., §39: 3-43.
  \item \textsuperscript{219} Wis. Stat. (1957) §194.18(9).
  \item \textsuperscript{220} Id., §194.29.
  \item \textsuperscript{221} Id., §195.26.
\end{itemize}
substantially identical in nature and regulate the transportation of dangerous articles by motor vehicle, should also be mentioned. It is made unlawful to transport by motor vehicle over the highways of the state any dangerous article (which is defined to include radioactive materials) in a manner that will unreasonably endanger persons or property. The transporting motor vehicle must be conspicuously marked to indicate the danger, but an exemption is granted when applicable regulations of the Interstate Commerce Commission have been followed.

In addition to the authority of state agencies having direct jurisdiction over common carriers, it should be noted that the labor departments and health departments typically are granted such broad powers in respect to the health and safety of employees and the public that they may also attempt to regulate the transportation of radioactive materials. Furthermore, local governmental units may also have authority to regulate transportation of radioactive substances. Therefore, we find once again an imposing array of state and local agencies potentially capable of exercising jurisdiction in respect to the same activity.

E. Regulation by Interstate Compact

The interstate compact was little used until the 1920’s, but recent years have seen a great increase in the application of this device in various regulatory fields, including conservation of natural resources, control and improvement of navigation, civil defense, education, flood control, labor legislation, and stream pollution. Both Congress and the Supreme Court have encouraged the use of the interstate compact as a means of solving problems essentially regional in character which do not readily lend themselves to solution by the states acting individually.

Several compacts recently entered into by two or more states have established interstate administrative agencies. The compacts of greatest significance with respect to the development of atomic energy for industrial uses are those relating to water pollution. However, the interstate compact may conceivably be used to regulate other activities affecting the use of atomic energy in the future. Therefore, in addition to consulting and obtaining the necessary permission from appropriate

---

228 See discussion of general powers of the labor and health departments, supra, Part III, Chapter III.
224 Zimmerman, The Interstate Compact Since 1925, 3 (1951).
state agencies, an industry planning a venture into this new field of activity should also investigate the existence of interstate agencies as another possible instrumentality of governmental regulation.

Since the landmark Colorado River Compact, approved by Congress in 1928, the compact has been employed extensively in regard to water problems common to several states. In the western states, including Colorado, New Mexico, Texas, Wyoming, Idaho, Nebraska, North Dakota, South Dakota, and Kansas, numerous compacts have been formed relating to matters of water allocation since scarcity of water is a crucial problem in these states. These compacts would assume significance if a nuclear reactor employing large quantities of water as a coolant were built in any of these states.

In the eastern and midwestern states, a number of compacts directed toward the problem of pollution of interstate streams have been negotiated between states and approved by Congress. Various factors have accounted for the increasing use of the interstate compact in this area, including especially the increasing number of instances of pollution of interstate waters and the reluctance of the Supreme Court to enjoin pollution at the instance of one state suing another.

Some of the more significant water pollution compacts merit discussion. Compacts to be examined will be primarily those involving the states selected for this study in connection with regulation at the state level. These compacts may be divided into two principal categories: (1) compacts which create administrative agencies, some of which have enforcement powers; and (2) compacts which create committees to collect and disseminate information and to make recommendations to the states. Since the second type does not involve regulatory powers, they are of little significance for present purposes, although action taken as a result of recommendations of the committees may have importance in the future.

I. Compacts Creating Joint Administrative Commissions

a. Commissions with Enforcement Powers

The following are representative interstate compacts pursuant to which enforcement powers are conferred upon administrative commissions:

(1) Ohio River Valley Water Sanitation Compact. The Ohio River

227 45 Stat. 1057 (1928).
228 Zimmerman, supra note 224 at 16, contains citations to many of these compacts.
Valley Water Sanitation Compact, drawn in 1936, became effective in 1948 when the requisite number of states ratified it. The signatory states are Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. The compact creates the Ohio River Valley Water Sanitation Commission, which is authorized to adopt, prescribe, and promulgate rules, regulations, and standards for administering and enforcing provisions of the compact. All industrial wastes discharged into the Ohio River or its tributaries must be modified or treated to protect the public health or to preserve the waters for other legitimate purposes as determined to be necessary by the commission after investigation, due notice, and hearing. The commission is empowered to order a person to discontinue, modify, or treat any discharge of industrial waste, and the orders are enforceable in any court of general jurisdiction. In addition, the commission is ordered to make surveys and recommendations and reports to the various signatory states.

(2) Tennessee River Basin Water Pollution Control Compact. The purpose of the Tennessee River Basin Water Pollution Control Compact is to promote the effective control and reduction of pollution in the waters of the Tennessee River basin. The signatory states are Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia. The compact has not yet come into effect for it still requires enactments by certain state legislatures and approval by the Congress. When it comes into operation, it will give the commission established under the compact somewhat similar to those possessed by the Ohio River Valley Water Sanitation Commission over the Ohio River basin.

(3) Delaware River Basin Water Commission Compact. The Delaware River Basin Water Commission Compact involves New York, New Jersey, Delaware, and Pennsylvania. Apparently, all states have approved except Pennsylvania. According to its terms, it is not to
become effective until approved by all four states; moreover, Congress has not yet approved the compact.

When it becomes effective, the Delaware River Basin Water Commission will have power, among other things, to "exercise an essential governmental function of each of the signatory states, for the purposes of developing, utilizing, controlling, and conserving the water resources of the Delaware River Basin in order to insure an adequate water supply. . . ." Among the primary purposes is the assurance of an "adequate minimum flow in the Delaware River for the protection of public health, for the benefit of industry and of fisheries . . . , for recreation, for general sanitary conditions, for the dilution and abatement of pollution, and for the prevention of undue salinity. . . ."

It would seem imperative that an industry contemplating the use of large quantities of water consult this commission if and when the compact goes into effect.

(4) Interstate Sanitation Commission. The Interstate Sanitation Commission was created by a tri-state compact, negotiated in 1935 between New York, New Jersey, and Connecticut. The boundaries of the Interstate Sanitation District established by the compact and the waters embraced by it are defined rather precisely in the agreement. In general, the compact is aimed at abating and reducing the pollution of harbor, coastal, and tidal waters and tributaries of tidal waters.

The commission is given power to classify and establish standards of purity for the various bodies of water embraced within the district. Unless properly treated, sewage or other polluting matters may not be discharged into the waters in the district. Enforcement powers are granted to the commission, as well as authority to issue orders. These powers have been exercised in at least one instance, and a New Jersey court has enforced the commission order by a mandatory injunction directed against the discharge of sewage by a municipality.

The commission must be consulted in the event that coastal, estuarial, or tidal waters of any of the signatory states are considered for use by an atomic energy establishment. Moreover, the commission has recently been authorized to study air pollution in the New York-New Jersey area.

286 Ibid.
b. Commissions without Enforcement Powers

The following are representative interstate compacts conferring advisory authority but not granting administrative enforcement powers:

(1) *New England Interstate Water Pollution Control Compact.* The New England Interstate Water Pollution Control Compact embraces the states of Maine, Massachusetts, Connecticut, Rhode Island, Vermont, New Hampshire, and New York. Congress and all of the states have approved the compact. According to Article I, the compact shall apply to:

... [S]treams, ponds and lakes which are contiguous to two or more signatory states or which flow through two or more signatory states or which have a tributary contiguous to two or more signatory states or flowing through two or more signatory states, and also shall apply to tidal waters ebbing and flowing past the boundaries of two states.

The New England Interstate Water Pollution Control Commission is given rule-making authority and is required to “establish reasonable physical, chemical and bacteriological standards of water quality satisfactory for various classifications of use.” The commission is not authorized to issue permits or orders. However, appropriate state agencies (i.e., agencies regulating health and water pollution) are charged with establishing treatment programs to meet these standards. Each signatory state pledges itself to provide for the abatement of existing pollution and for the control of future pollution of the waters concerned. Hence, all enforcement powers are retained by the individual signatory states. Of course, there is a possibility that the United States Supreme Court may enforce the compact obligations.

(2) *Bi-State Development District.* The Bi-State Development District is the result of a compact between Illinois and Missouri. It was approved by Congress in 1950. The purpose of the compact is to establish a metropolitan development district, consisting of the city of St. Louis and several surrounding counties. The Bi-State Development Agency created pursuant to this interstate agreement is given power to “plan, construct, maintain, own and operate bridges, tunnels, airports and terminal facilities and to plan and establish policies for sewage and

---

241 *Id.,* art. V.
242 *Id.,* art. VI.
drainage facilities." 244 Apparently, this agency will act as a general planning agency for this area. 245

While the agency has no direct powers of enforcement with respect to matters of water pollution and use, nevertheless as a planning and rule-making agency it has policy-forming authority, and it would seem advisable to consult it should an industry contemplate the use of waters in the area covered by the compact.

(3) Interstate Commission on the Delaware River Basin. The Interstate Commission on the Delaware River Basin might be termed a "joint advisory commission," created pursuant to a compact between New York, New Jersey, Delaware, and Pennsylvania. 246 The compact outlines detailed requirements for the disposal of wastes in the Delaware River basin. The basin is divided into four zones, and it has been said: "For the industry operating in one of these zones or planning to build there, the agreement provides an exact picture of what will be required." 247 No enforcement powers are given to the commission, its powers being purely advisory. The Delaware River Basin Water Commission Compact, discussed above, now in the process of being adopted by the same four states, will have enforcement powers and is a product of the recommendations of this older commission.

(4) Columbia Interstate Compact. The Columbia Interstate Compact was signed in 1955 by the states of Idaho, Montana, Oregon, Washington, Nevada, Utah, and Wyoming. It will become effective when ratified by the first four states listed above and approved by Congress. 248 Under the compact, the Columbia Interstate Compact Commission will have advisory powers in respect to the utilization of the water and other related resources of the Columbia River basin. It is of particular interest for the purposes of this study to note that specific power is given the commission to prepare and recommend plans for achieving the most efficient use of the hydroelectric power resources in the basin and for controlling pollution of waters of the Columbia River system. 249

2. Compacts Creating Informal Advisory Commissions

Several compacts establishing purely advisory commissions on water pollution have been entered into by different groups of states. These

244 64 Stat. 569 (art. III) (1950).
245 See Zimmerman, supra note 224 at 12.
248 For the text of the compact, see Idaho Laws 1955, c. 185.
249 Art. V, §C(3) and art. VIII, §B of the compact respectively.
compacts are of little significance at present, except insofar as they may lead to future compacts or statutes which may be recommended by the respective commissions. These compacts typically embrace a particular river basin, and give the commission authority to make investigations, disseminate information, and make recommendations to their respective signatory states. The signatory states typically agree to cooperate in the abatement of existing pollution, to prevent future pollution, and to enact uniform legislation for the abatement and prevention of water pollution.\textsuperscript{250}

Another type of agreement, even more informal, provides simply that departments of health of several states agree to cooperate with each other and with the United States Health Service in abating and preventing water pollution. Apparently these agreements create a committee which meets periodically, discusses mutual problems of water pollution, and makes suggestions. Beyond this the committee cannot go.\textsuperscript{251}


Also to be mentioned are joint resolutions between water pollution commissions of two or more states. For example, Minnesota has joined with Wisconsin in at least two joint resolutions, one in 1952 and the other in 1953. By the terms of these resolutions each signatory state agrees to require certain minimum treatment of wastes to prevent water pollution. Another joint resolution was entered into by the states of Illinois, Iowa, and Wisconsin in 1952, with essentially the same provisions as the resolutions between Wisconsin and Minnesota.

3. Conclusion

It will be important for any private industry contemplating the establishment of a plant utilizing nuclear power or otherwise using nuclear energy in such manner as to affect interstate streams to take into consideration any interstate compacts that may be applicable and to consult with the interstate commissions whether the commissions have enforce-


\textsuperscript{251} These compacts do not ordinarily get into the state statute books, but are matters of informal public record.
ment or merely advisory powers. If the particular commission has enforcement powers, then clearly an industry will be subject to them. In the case of a commission with only advisory powers, a private industry would nevertheless be well advised to follow its recommendations. The commission's proposals may be implemented by statutes of the states party to the compact. Moreover, good public relations will demand that the industry adopt the health and safety standards recommended by the interstate commission. Furthermore, a failure to adopt the recommended standards may serve as evidence of negligence, if persons or property are injured, and actions are brought in the courts to recover damages.