

# Draft Proposal for Legislation to Control Water Pollution from Agricultural Sources

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### Recommended Citation

Robert J. Piampiano, *Draft Proposal for Legislation to Control Water Pollution from Agricultural Sources*, 59 Cornell L. Rev. 1097 (1974)  
Available at: <http://scholarship.law.cornell.edu/clr/vol59/iss6/5>

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## DRAFT PROPOSAL FOR LEGISLATION TO CONTROL WATER POLLUTION FROM AGRICULTURAL SOURCES

Widespread attention focused upon the general problems of pollution over the last decade has resulted in the enactment of numerous laws restricting pollution. Initial measures dealt in broad terms with such general categories as water and air pollution, sewage, and solid waste disposal. All sources, whether industrial, municipal, or agricultural, were considered together under these broad legislative mandates.<sup>1</sup> As the new regulatory agencies mandated by the legislatures became established and began to exercise the rulemaking and standard-setting authority which they had been given, and as environmental technology developed, specific sources of pollution came under increasingly specialized regulations.<sup>2</sup>

Agriculture, however, has thus far escaped much of this specialized control.<sup>3</sup> Because a great deal of agricultural water

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<sup>1</sup> The history and development of the Federal Water Pollution Control Act (33 U.S.C. §§ 1251-1376 (Supp. II 1972)) gives a prime example of an initially broad, rather unspecific pollution control statute which subsequently has been amended to deal with specific sources of pollution.

The Act was initially passed in 1948 (Act of June 30, 1948, ch. 758, 62 Stat. 1155) as the first federal legislative effort in the field of water pollution control. Major amendments were added in 1956 (Act of July 9, 1956, ch. 518, 70 Stat. 498) and in 1961 (Act of July 20, 1961, Pub. L. No. 87-88, 75 Stat. 204), but it was not until the amendments of 1965 (Act of Oct. 2, 1965, Pub. L. No. 89-234, 79 Stat. 903), also known as the Water Quality Act of 1965, that a meaningful program of nationwide federal regulations was enacted. The 1965 amendments created the basic federal regulatory system existing today and mandated the development of minimum water quality standards by each state. These water quality standards, representing a more specific phase of regulatory development, were directed primarily at the control of industrial and municipal sewage discharges. For the minimum standards, see 33 U.S.C. § 1313 (Supp. II 1972); 40 C.F.R. § 124 (1973).

Since the creation of the basic federal control system, some fundamental changes have occurred. The 1972 amendments greatly changed and reorganized the federal law. Act of Oct. 18, 1972, Pub. L. No. 92-500, 86 Stat. 816; see note 2 *infra*. See generally Walker, *Legal Restraints on Agricultural Pollution*, in THE RELATIONSHIP OF AGRICULTURE TO SOIL AND WATER POLLUTION 239-40 (Cornell University Conference on Agricultural Waste Management 1970) [hereinafter cited as 1970 WASTE MANAGEMENT REPORT].

<sup>2</sup> The Federal Water Pollution Control Act (33 U.S.C. §§ 1251-1376 (Supp. II 1972)), for example, contained no specific reference to agricultural sources of pollution until the amendments of 1972 (Act of Oct. 18, 1972, Pub. L. No. 92-500, 86 Stat. 816), which created the National Pollution Discharge Elimination System (NPDES) and in conjunction therewith mandated the development of guidelines, performance standards, and effluent limitations on such sources. At no time prior to the 1972 amendments, however, did either the language or history of the Act specifically exclude coverage of agricultural pollution. See 33 U.S.C. §§ 1314(e)(2)(A), 1316(b)(1)(A) (Supp. II 1972); Walker, *supra* note 1, at 239.

<sup>3</sup> The 1972 amendments to the Federal Water Pollution Control Act (Act of Oct. 18,

pollution comes from so-called "non-point" sources<sup>4</sup> which are hard to identify, hard to quantify, and hard to discern at all, agricultural pollution is less visible to the public. Consequently, it has generated less public concern than the more conspicuous forms of industrial pollution which are the traditional focus of environmental efforts. Furthermore, American attitudes are such that pollution caused by an industrial giant backed by millions of dollars in capital is seen in far worse light than that of a struggling farmer who earns a living by his own labor. But agriculture's escape thus far from significant regulation is in no way an indication that pollution coming from agricultural sources is not a serious problem.<sup>5</sup> The volume of agricultural pollution suggests that legislative efforts must now enter a new phase of development—increased control of specific sources of agricultural pollution.

The objective of this Note is to formulate and propose laws and regulations to deal with the problem of water pollution from agricultural sources in New York State.<sup>6</sup> As with many environmental efforts, the formulation of the pollution control statutes

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1972, Pub. L. No. 92-500, 86 Stat. 816) represent the first significant federal efforts at reversing this situation. At the state level, specific agricultural sources of pollution, with the exception of pesticides, remain largely unregulated or inadequately controlled.

<sup>4</sup> For a definition of "non-point" sources, see note 12 *infra*.

<sup>5</sup> The magnitude of water pollution from agricultural sources is significant, both nationwide and in New York State. One billion pounds of pesticide were applied in the United States in 1970. Seventy percent of this amount, or 3.3 pounds for each person in this country, was used in agriculture. Livestock produce 2.3 billion tons of waste annually, including 1.2 billion tons of solid waste. This is approximately equivalent to the amount of waste produced annually by a human population of 1.9 billion persons. Pimentel, *Pesticides and Pest Control in the Future*, in AGRICULTURAL WASTES: PRINCIPLES AND GUIDELINES FOR PRACTICAL SOLUTIONS 12 (Cornell University Conference on Agricultural Waste Management 1971) [hereinafter cited as 1971 WASTE MANAGEMENT REPORT]; UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, MANAGEMENT OF FARM WASTES 16 (1972).

The statewide scope of the problem is no less significant. New York State has more than 50,000 farms and 10 million acres devoted to agriculture, and is second only to Wisconsin in milk production. Each dairy cow in the state produces an average of 27,000 pounds of manure annually. Since 1959 the statewide use of fertilizer has exceeded 600,000 tons each year. Comparable annual figures for nitrogen and phosphorus, both key agricultural pollutants, are 45,000 and 65,000 tons respectively. NEW YORK STATE DEP'T OF ENVIRONMENTAL CONSERVATION, ENVIRONMENTAL PLAN FOR NEW YORK STATE 27 (prelim. ed. 1973) [hereinafter cited as ENVIRONMENTAL PLAN]; see generally U.S. DEP'T OF COMMERCE, CENSUS OF AGRICULTURE: NEW YORK (1969).

<sup>6</sup> Preliminary research for this proposal was conducted during the summer of 1973 under a grant provided by Canandaigua Pure Waters, Limited. The recommendations set forth express the views of the author only and are not necessarily reflective of the opinions of Canandaigua Pure Waters.

The author is indebted to Canandaigua Pure Waters for enabling him to make this study, and to Dr. Paul Zwerman, Professor of Soil Conservation, New York State College of Agriculture and Life Sciences, Cornell University, for valuable technical assistance.

involves a compromise between often competing interests. Regulations not only must provide effective protection for the environment, but also must be economically and technically acceptable to the farmer, whose numbers are already decreasing as a result of other economic pressures.<sup>7</sup> The proposals made herein are intended to foster significant environmental improvement, but at minimal cost to the farmer.<sup>8</sup> To achieve this compromise, an understanding of both the scientific and legal aspects of the problem is critical.<sup>9</sup>

## I

SOURCES, MECHANICS, AND EFFECTS OF  
AGRICULTURAL POLLUTION

Of the many substances used in agricultural operations which are potential pollutants, three are of primary concern to water quality management: nitrogen, phosphorus, and toxic chemical pesticide residues.<sup>10</sup> Nitrogen and phosphorus compounds enter the water cycle from animal wastes and commercial fertilizers. Pesticide<sup>11</sup> residues come directly from applications of commercial

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<sup>7</sup> Since 1959, the trend in New York has been toward fewer, but larger, farms, on less total land. In 1959 there were 82,400 farms in New York State, covering a total of 13.5 million acres, with an average of 164 acres per farm. In 1969, there were 51,900 farms covering 10.1 million acres, with an average of 192 acres per farm. ENVIRONMENTAL PLAN 27.

<sup>8</sup> In fact, the regulations proposed may in some instances lead to increased farm revenue by fostering better management techniques. For example, farmers tend to apply more fertilizer than can be profitably used. This fertilizer is costly; therefore, pollution controls which limit fertilizer applications to amounts which can be properly utilized will reduce farm overhead. But since this is not always the case, and since actual data on the effect of these proposals is lacking, tax advantages for the farmer will be suggested to spread the cost of pollution control and thus ease the farmer's burden of compliance. See notes 154-55 & 160 and accompanying text *infra*.

<sup>9</sup> For this reason, the study begins with a technical statement of the problem, detailing the sources and mechanics of agricultural pollution. It should be emphasized, however, that this statement is intended for the layman, not the scientist. Few legislators are scientists, and it is the legislators who must understand the basic principles of the problem to appreciate the legislation they may be called upon to approve.

After examining the scientific aspects of the problem, the legal status quo is explored at the federal, state, and local levels. The inadequacies of the present regulatory structure are detailed, and proposals are set forth to cover areas presently lacking proper regulation. These proposals are of two types. First, general proposals suggest broad elements needed to give New York an overall, co-ordinated plan for control of agricultural pollution. Second, specific laws and regulations needed to implement the most important of the general suggestions have been drafted.

<sup>10</sup> Hunt, *Estimation of Water Pollution from Farming Activities*, in 1970 WASTE MANAGEMENT REPORT 242; ENVIRONMENTAL PLAN, 43.

<sup>11</sup> As used throughout this study, the term "pesticide" includes pesticides, fungicides, rodenticides, nematocides, and insecticides.

preparations to soils, shrubs, plants, and crops. All three pollutants enter surface and ground water primarily from "non-point" sources.<sup>12</sup>

When compounds with high concentrations of nitrogen and phosphorus are applied in proper amounts, through proper techniques, they are beneficial to plant growth and soil development. They become potential pollutants only when the amount applied exceeds the amount that can be used by plants, crops, and the soil,<sup>13</sup> because the excess is then available to leach or run off into surface and ground water. When such fertilizers are properly used, a certain amount of nitrogen is lost to the atmosphere in gaseous form through a process called denitrification and thus does not create a pollution problem.<sup>14</sup> An additional amount is utilized by the soil to maintain a proper nitrogen content. This process, called mineralization, also does not create a pollution problem.<sup>15</sup> Similarly, various types of crops and plants themselves utilize different amounts of nitrogen in the course of their growth; nitrogen thus utilized will not create pollution.<sup>16</sup> Therefore, regulations should

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<sup>12</sup> Environmental scientists classify sources of pollution into two broad categories: "point" and "non-point" sources. Point sources are easily identifiable, concentrated discharge sources of pollutants, such as smokestacks, sewer pipes, or drainage ditches. Because the point of discharge is concentrated, such sources are easy to measure and study, and therefore are relatively easy to control. Most industrial pollution tends to be from point sources. However, almost one-third of all water pollution in New York State comes from "non-point" sources. ENVIRONMENTAL PLAN 41. "Non-point" sources are those having a diffused point of discharge. Examples are manure and fertilizer runoff from open fields, seepage and leaching of pollutants into surface and ground water, and soil erosion. Because non-point sources lack concentration, they are hard to identify, analyze, and control. *Id.*

<sup>13</sup> Animal wastes, especially manure, and commercial fertilizers have high concentrations of nitrogen and phosphorus compounds. For example, the average New York dairy cow produces 115 grams of nitrogen per day in its urine and 100 grams per day in fecal matter. This is roughly ten pounds of nitrogen per ton of waste. The corresponding figure for phosphorus is approximately four pounds per ton of fresh manure. The amount of nitrogen and phosphorus contained in commercial fertilizers, of course, varies with the type and formula of the fertilizer used. See D. Coote, *Animal Waste Legislation and Its Impact on Dairy Farms in Two Regions Dominated by Different Kinds of Soils (Ochraqualls and Hapludalfs) as Estimated with a Mathematical Model* 18, 23, August 1973 (Ph.D. thesis, Cornell University) (on file at the *Cornell Law Review*).

<sup>14</sup> Coote, *supra* note 13, at 19. See generally D. Bouldin & D. Lathwell, *Behavior of Soil Organic Nitrogen*, Cornell Univ. Agric. Experiment Station, Bull. No. 1023, 1968; Bremner & Shaw, *Denitrification in Soil*, 51 J. AGRIC. SCI. 40-52 (1958).

<sup>15</sup> In New York this amount is approximately 42 pounds of nitrogen per acre per year for a soil with 3.5% organic content. Coote, *supra* note 13, at 23. See generally H. BUCKMAN & N. BRADY, *THE NATURE AND PROPERTIES OF SOILS* (7th ed. 1969); M. JACKSON, *SOIL CHEMICAL ANALYSES* (1958).

<sup>16</sup> For example, studies done in Maine suggest that corn utilizes about 250 pounds per acre per crop of nitrogen and 100 pounds per acre per crop of phosphorus. Hay uses 300 pounds of nitrogen and 120 pounds of phosphorus, and potatoes utilize 150 pounds of

limit the amounts of nitrogen and phosphorus applied annually to a reasonable estimate of the amounts that can be used in the nonpolluting processes of denitrification, mineralization, and plant growth. Any additional amounts not only are potential pollutants but also represent an economic waste to the farmer.

The total quantity of nitrogen and phosphorus applied, however, is not the only factor to be considered in regulating their use. The solubility of nitrogen is the key to its transfer from the field to the receiving water. It easily dissolves<sup>17</sup> in snow and rainwater, and enters the water cycle through leaching and runoff. Regulations to control nitrogen pollution not only must limit the maximum amounts which may be applied, but also must control its transfer by limiting the slope, terrain, precipitation, saturation, and soil permeability conditions under which applications are permitted. Phosphorus, on the other hand, is less soluble than nitrogen. Although some soluble transfer occurs and can be controlled in the same manner as nitrogen transfer, the key phosphorus transfer mechanism involves the attachment of insoluble phosphorus to soil particles.<sup>18</sup> For this reason, phosphorus pollution control requires prevention of soil erosion.

The detrimental effect of nitrogen and phosphorus upon the receiving water is the result of two processes, contamination and eutrophication. Contamination is simply the presence of these substances in excessive amounts. High concentrations of nitrogen or phosphorus in water used for human or animal consumption constitute a significant health hazard.<sup>19</sup> Eutrophication, which in simplest terms is the accelerated growth of algae and other undesirable aquatic plants, is the more important and more common

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nitrogen and 60 pounds of phosphorus. MAINE DEP'T OF ENVIRONMENTAL PROTECTION, REGULATIONS, STANDARDS FOR MANURE AND MANURE SLUDGE DISPOSAL ON LAND 3 (1971) (first promulgated by Univ. of Maine and Maine Soil & Water Conservation Comm'n). See also Neal, *Removal of Nutrients from the Soil by Crops and Erosion*, 36 AGRONOMY J. 601-07 (1944).

<sup>17</sup> Nitrogen tends to form soluble salts of ammonium ( $\text{NH}_4^+$ ), nitrate ( $\text{NO}_3^-$ ), and nitrite ( $\text{NO}_2^-$ ). Coote, *supra* note 13, at 17-18, 24-25.

<sup>18</sup> Oglesby, *Farm Land Runoff*, in 1971 WASTE MANAGEMENT REPORT 15, 18; Coote, *supra* note 13, at 23-24. See also Nelson & Romkens, *Transport of Phosphorus in Surface Runoff*, in 1970 WASTE MANAGEMENT REPORT 215; Taylor, *Phosphorus and Water Pollution*, 22 J. SOIL & WATER CONSERVATION 228 (1967).

<sup>19</sup> For example, concentrations in excess of 10 milligrams of nitrogen per liter in drinking water are considered dangerous. Coote, *supra* note 13, at 17-18. In 1951, over 278 infant deaths in the Midwest resulted from excessive nitrogen concentrations caused by heavy fertilizer use. Oglesby, *supra* note 18, at 18. See also FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, U.S. DEP'T OF INTERIOR, REPORT OF THE COMM. ON WATER QUALITY CRITERIA (1968).

problem. Nitrogen and phosphorus are powerful nutrients for plants; when natural amounts of these substances are exceeded, a superabundance of algae and other aquatic plant life will occur in the receiving water.<sup>20</sup>

The factors controlling the speed and amount of eutrophication have been identified.<sup>21</sup> It is therefore necessary in drafting pollution control measures to limit the use of nitrogen and phosphorus to times and conditions least likely to be conducive to the process.

Pesticides, the third principal source of agricultural pollution, have two characteristics which render them potentially dangerous: nonspecificity of effect, and residue durability.<sup>22</sup> A chemical designed to kill a harmful crop insect is likely also to kill beneficial organisms in the field and in the streams or ponds it may eventually enter. Moreover, many of the chemicals used in pesticides form highly toxic and long-lasting residues. Because they fail to break down after immediate use, they persist in the soil and enter the water cycle through careless application, seepage, runoff, and soil erosion.<sup>23</sup> These toxins then enter the food chain and accumulate in dangerously high levels in organisms of increasing complexity, including man, where they pose a serious threat to health and

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<sup>20</sup> As eutrophication takes place, the accelerated growth of algae absorbs more than a normal amount of dissolved oxygen from the water. The level of dissolved oxygen in turn is critical to the ability of the water to cleanse itself of impurities. As oxygen decreases, increasing concentrations of sewage and other pollutants develop, many of which are likely to foster additional algae growth. Ecological balance is eventually disrupted, and insect and fish life is severely altered or killed. Oglesby, *supra* note 18, at 16-21; Denit, *Environmental Quality and Productivity*, in 1971 WASTE MANAGEMENT REPORT 6, 10. See generally Frink, *Plant Nutrients and Water Quality*, 9 AGRIC. SCI. REV. 11-25 (1971).

<sup>21</sup> Three factors are critical to the speed and amount of eutrophication in any body of water: the time of year when phosphorus and nitrogen pollution occurs, the amount and form of water runoff, and the unique characteristics of the receiving water. Oglesby, *supra* note 18, at 17. Application of nitrogen and phosphorus during periods of high precipitation or runoff, or just before the peak of the algae growing season, tends to increase eutrophication. Moreover, water is capable of assimilating more pollutants in the spring. All these factors suggest that applications of manure and fertilizer should be prohibited or limited in winter and spring, and controlled to a lesser degree in late summer and early fall. *Id.* at 17-18. In terms of the quality and nature of the receiving water, New York waters have certain unique characteristics which necessitate special consideration. It has been found that as a general rule in New York, addition of waste phosphorus has a greater effect in increasing eutrophication than does the addition of nitrogen. The absence of significant natural concentrations of phosphorus in the waters of the state is the primary factor inhibiting eutrophication. *Id.* at 15. Therefore special consideration must be given to limiting phosphorus pollution. Of course, when the health hazards associated with nitrogen contamination are considered, the need to control both substances is obvious.

<sup>22</sup> Pimentel, *supra* note 5, at 12; ENVIRONMENTAL PLAN 43, 67.

<sup>23</sup> See note 22 *supra*.

propagation.<sup>24</sup> Effective pesticide regulations must ensure specificity of effect and limit the use of chemicals which produce long-lasting toxic residues.

## II

### PRESENT RESTRICTIONS ON POLLUTION

Potential sources of pollution in New York State<sup>25</sup> are presently affected by statutory restrictions<sup>26</sup> existing at the federal, state, and local levels.<sup>27</sup> The present scheme of controls limits water

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<sup>24</sup> It is exactly this characteristic of residue durability leading to build-up of high concentrations which makes DDT so dangerous and has led to the banning of its use in many places, including New York State. N.Y. ENVIRONMENTAL CONSERVATION LAW § 33-0303 (McKinney 1973) [hereinafter cited as N.Y.E.C.L.]; 6 N.Y. CODES, RULES & REGULATIONS § 326.2 (1973) [hereinafter cited as N.Y.C.R.R.]; ENVIRONMENTAL PLAN 67.

<sup>25</sup> This section deals only with present controls affecting agriculture in New York State. For a comparative discussion of the laws and regulations of other states, see note I19 and accompanying text *infra*.

<sup>26</sup> This study is limited to restrictions of statutory origin. Virtually none of those controls provides or creates any private causes of action. See, e.g., N.Y.E.C.L. § 19-0705 (McKinney 1973) (specifically stating that private individuals acquire no actionable rights to enforce statutory water pollution control measures).

Private citizens adversely affected by pollution must therefore rely upon the traditional common law causes of action. Although not dealt with here, common law restrictions of potential relevance to agricultural pollution have been identified. These include trespass, nuisance, negligence, and the public trust doctrine. See generally Colyer & Levi, *Potential Citizen Initiated Legal Action Against Agricultural Pollution*, in WASTE MANAGEMENT RESEARCH 83-95 (Cornell University Conference on Agricultural Waste Management 1972) [hereinafter cited as 1972 WASTE MANAGEMENT REPORT]; Walker, *supra* note 1; Kinyon & McClure, *Interferences with Surface Waters*, 24 MINN. L. REV. 891, 902 (1940).

Some authorities have suggested, however, that private litigation utilizing existing common law doctrines is an inadequate means of controlling agricultural pollution. Walker, *supra* note 1, at 241; Coote, *supra* note 13, at 11. This may be especially true in New York State, where strict interpretations have long been given by the courts to the nuisance doctrine. See *Ballard v. Saratoga Victory Mfg. Co.*, 77 N.Y. 525 (1879) (no cause of action for injury suffered when riparian owner upstream detained, used, and discharged water from stream); *Henderson Estate Co. v. Carroll Electric*, 113 A.D. 775, 99 N.Y.S. 365 (1906), *aff'd without opinion*, 189 N.Y. 531, 82 N.E. 1127 (1907) (even substantial harm may be "reasonable" and prevent successful nuisance action). The "common-enemy" doctrine of surface runoff (see Kinyon & McClure, *supra*, at 902-03) and the granting of injunction even where permanent and continuing damage is found (see *Boomer v. Atlantic Cement Co.*, 26 N.Y.2d 219, 257 N.E.2d 870, 309 N.Y.S.2d 312 (1970)) also have been strictly construed.

Suggestions for the improvement of private litigation systems or for the creation of additional private rights require a separate study beyond the scope of this Note. Therefore the proposals advanced herein are limited to state and locally enforced pollution controls.

<sup>27</sup> Statutory restrictions on pollution come from both laws and administrative regulations. For purposes of clarity here and elsewhere, the term "laws" will be used to denote specific legislative enactments; "regulations" will refer to administrative directives or guidelines issued in support of duly enacted laws, and the terms "controls" or "restrictions" will be used to include both laws and regulations.

pollution generally, but in only a few instances does it restrict specific sources of agricultural pollution.<sup>28</sup>

### A. *Present Federal Controls*

Although state and local restrictions are of greater practical significance to dairy farm operations in New York State than are federal controls,<sup>29</sup> federal legislation is often the impetus for state regulations and therefore remains important.

#### 1. *Federal Water Quality Standards*

Under provisions of the Federal Water Pollution Control Act Amendments of 1965,<sup>30</sup> each state, or the federal government in the absence of state action, was directed to promulgate and enforce minimum water quality standards for interstate and navigable waters.<sup>31</sup> Any state which exercises its option to develop its own program in lieu of a federal scheme<sup>32</sup> must meet minimum federal program requirements<sup>33</sup> and submit its program to the Administrator of the Environmental Protection Agency for approval.<sup>34</sup> To comply with federal law, a state program must make illegal any source of pollution, whether agricultural or industrial, which violates or substantially contributes to the violation of any federally imposed water quality standard.<sup>35</sup>

#### 2. *The Rivers and Harbors Act of 1899*

Under the existing division of responsibility between the federal and state governments, the United States retains the authority

<sup>28</sup> See notes 125, 140 & 141 and accompanying text *infra*.

<sup>29</sup> Federal legislation has sought primarily to encourage state and local action by a variety of techniques, including research grants for a broad range of pollution control studies (see 33 U.S.C. §§ 1254-56 (Supp. II 1972)), technical assistance to the states through the development of standards and guidelines (see *id.* §§ 1311-16), and construction grants for pollution control facilities (see *id.* §§ 1281-92). Although the above techniques are permissive, other federal legislation *requires* action. See *id.* § 1313 (requiring promulgation of statewide water quality standards). But even where action is mandatory, federal law gives states the option of acting in lieu of the federal government. See, e.g., *id.* §§ 1313(a)(2), 1342. Thus, the effect of federal controls is often to foster state and local regulation. Since this has occurred in New York, state and local regulations continue to have the greatest practical effect on day to day farm operation.

<sup>30</sup> 33 U.S.C. §§ 1251-1376 (Supp. II 1972).

<sup>31</sup> *Id.* § 1313.

<sup>32</sup> *Id.* § 1313(a)(2).

<sup>33</sup> 40 C.F.R. §§ 120, 124 (1973).

<sup>34</sup> 33 U.S.C. §§ 1313(a)(2), (a)(3) (Supp. II 1972).

<sup>35</sup> Section 1313 of the federal act approves independent state standards so long as they are consistent with public health requirements and the purposes of the federal law. *Id.* § 1313. See also *id.* § 1319; 40 C.F.R. § 120 (1973).

to promulgate and enforce water quality standards for coastal, interstate, and navigable waters.<sup>36</sup> The term "navigable waters" has been very broadly defined<sup>37</sup> and, although very little litigation has focused on the issue,<sup>38</sup> the present government position is that practically any size body of water falls within this category.<sup>39</sup> Thus, the federal government claims authority to issue and enforce water quality standards affecting many of a state's waters. In practice, however, the federal government, through the Environmental Protection Agency (EPA), has delegated much of the primary responsibility for standards and enforcement to the states through such provisions as the Federal Water Pollution Control Act Amendments of 1965.<sup>40</sup> The EPA retains primary enforcement responsibility only for coastal, interstate, and larger intrastate bodies of water. In these instances, the Rivers and Harbors Act of 1899 is the primary mechanism of enforcement and control.

Provisions of this Act, as further elaborated upon by supplemental executive orders and administrative regulations,<sup>41</sup> require a permit for any "industrial waste discharge" from a "point" source into any coastal, interstate, or navigable water.<sup>42</sup> Permits are issued by the Army Corps of Engineers only after certification by the state and by the EPA.<sup>43</sup> Industries discharging waste without a permit or in violation of the conditions of the Act are subject to fines and abatement.<sup>44</sup>

The Rivers and Harbors Act is significant to agriculturalists for a number of reasons. The EPA considers any agricultural point source of pollution to be an "industrial waste discharge."<sup>45</sup> Also, it considers feedlots, channels in fields, overflow pipes or outlets from waste treatment ponds, lagoons, and ditches as "point" sources potentially subject to provisions of the Act.<sup>46</sup> Under pres-

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<sup>36</sup> Rivers and Harbors Act of 1899, 33 U.S.C. §§ 401-66 (1970).

<sup>37</sup> "Navigable waters" are defined as "the waters of the United States." *Id.* § 1362.

<sup>38</sup> See notes 126-32 and accompanying text *infra*.

<sup>39</sup> Anderson, *Implications of the Permit Program in the Poultry and Animal Feeding Industry*, in 1972 WASTE MANAGEMENT REPORT 25-45; Denit, *supra* note 20.

<sup>40</sup> See note 29 *supra*.

<sup>41</sup> Exec. Order No. 11,574, 3 C.F.R. 309 (Jan. 1, 1973); 33 C.F.R. § 209.131(b)(2) (1973).

<sup>42</sup> Denit, *supra* note 20.

<sup>43</sup> *Id.* See also 33 C.F.R. § 209.131(d)(11) (1973). When the applicant is a federal agency, an environmental impact statement must be submitted to the Council on Environmental Quality before a permit can be obtained. 42 U.S.C. §§ 4321-47 (1970); Exec. Order No. 11,752, 38 Fed. Reg. 34,793 (1973); 33 C.F.R. § 209.131(j) (1973).

<sup>44</sup> 33 U.S.C. § 411 (1970); *id.* § 1319(b) (Supp. 11 1972); Exec. Order No. 11,574, *supra* note 41, at § 2(b).

<sup>45</sup> Denit, *supra* note 20.

<sup>46</sup> *Id.*

ent federal policy actual compliance is required for any point discharge into interstate, coastal, or larger intrastate waters where such discharge comes from farming operations involving 1,000 or more "animal units."<sup>47</sup> The extent to which the EPA will exercise the latent authority which it claims over smaller discharges into smaller bodies of water remains to be seen, and is probably dependent upon the effectiveness of emerging state and local regulations in controlling smaller sources.

### 3. *The National Pollution Discharge Elimination System*

In 1972, through a series of amendments to the Federal Water Pollution Control Act,<sup>48</sup> Congress created the National Pollution Discharge Elimination System (NPDES). Under this legislation the EPA is directed to establish a permit system for discharges of pollutants from point sources into any "navigable waters" of the United States.<sup>49</sup> Because "navigable waters" are broadly defined by the Act as "waters of the United States,"<sup>50</sup> the NPDES applies in theory to virtually every body of water.

Permits are required of both new and existing point sources of pollution,<sup>51</sup> which means that this legislation has the far-reaching effect of authorizing the EPA to require a permit for every significant point source of pollution in the country. The Act also directs the EPA to develop and promulgate several new pollution discharge standards, covering both new and existing sources of pollution,<sup>52</sup> which must be met before a permit can be issued.<sup>53</sup> These standards supplement the general water quality criteria

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<sup>47</sup> An "animal unit" is equivalent to the average BOD (Biodegradable Organic Load) of waste from one beef cow of 1,000 pounds. One thousand units is equal to 700 dairy cows, 4,500 hogs for slaughter, 180,000 laying hens, 35,000 feeder pigs, 55,000 turkeys, or 12,000 sheep. Anderson, *supra* note 39, at 27; Denit, *supra* note 20.

<sup>48</sup> 33 U.S.C. §§ 1342-45 (Supp. II 1972).

<sup>49</sup> *Id.*

<sup>50</sup> *Id.* § 1362.

<sup>51</sup> *Id.* § 1342 extends NPDES generally to "the discharge of any pollutant, or combination of pollutants."

<sup>52</sup> As of the publication of this Note these standards are in the preliminary stages of formulation. Proposed effluent limitations on toxic pollutants have been published. 38 Fed. Reg. 35,388 (1973). In addition, proposed effluent limitations, pretreatment guidelines, and new source performance standards have been published for various point sources, including standards for some agriculturally related activities. For example, feedlot standards (38 Fed. Reg. 24,466-70 (1973)) and standards for dairy processing products (*id.* at 34,953) have been established, although as yet no final standards are available. Proposed regulations are subject to further amendments and corrections.

<sup>53</sup> 33 U.S.C. § 1342(b) (Supp. II 1972). However, since final standards of compliance are not yet established (*see* note 52 *supra*), the NPDES program is not presently in full operation.

previously discussed,<sup>54</sup> which also must be met before a permit can be obtained.<sup>55</sup>

Several provisions of NPDES directly affect agricultural sources of pollution. For example, the EPA is specifically directed by Congress to promulgate standards for all new point sources of pollution. New feedlots are specifically cited by Congress as one point source for which such standards must be issued. However, the congressional list is not exclusive and the EPA has expanded it to include a variety of agricultural sources.<sup>56</sup> Moreover, the EPA has taken the position that "some water from most farms is returned to navigable waters as the term . . . is defined" in the Act,<sup>57</sup> and therefore all farms are *potentially* subject to NPDES. But EPA regulations issued in July 1973 do exclude smaller farms from NPDES coverage<sup>58</sup> on the theory that, if they were included, the expenditure of resources necessary to police their conduct would be disproportionate to potential environmental improvement.<sup>59</sup>

Consistent with the general nature of federal programs,<sup>60</sup> states, under NPDES legislation, have the option to develop and submit their own discharge elimination programs to the EPA for approval.<sup>61</sup> New York has taken steps to exercise this option, and is in the process of establishing a State Pollution Discharge Elimination System (SPDES) in lieu of NPDES.<sup>62</sup>

<sup>54</sup> See notes 30-35 and accompanying text *supra*.

<sup>55</sup> See note 53 *supra*.

<sup>56</sup> See note 52 *supra*.

<sup>57</sup> 38 Fed. Reg. 18,000 (1973) (amending 40 C.F.R. §§ 124-25).

<sup>58</sup> These regulations, in sum, limit NPDES applicability to the following agricultural and silvicultural point sources:

(1) *Animal Confinement Facilities* where such facilities are used for 30 days or more per year and where the number of animals held is 1,000 or more slaughter and feeder cattle; 700 or more dairy cattle; 10,000 or more sheep; 55,000 or more turkeys; 2,500 or more swine over 55 pounds; 100,000 or more laying hens or broilers with continuous overflow watering; or 30,000 or more laying hens or broilers with liquid manure handling systems; or 5,000 or more ducks. A special formula applies for computing the cutoff number for combinations of the above livestock.

(2) *Fish and Animal Production Facilities* where discharge from holding ponds or treatment lagoons occurs on 30 or more days per year and where production is at least 20,000 pounds annually.

(3) *Irrigation Activities* where there is a concentrated discharge, and where the return flow is from land areas of 3,000 or more contiguous acres, or from 3,000 noncontiguous acres using the same discharge system.

(4) *Any Additional Agricultural Point Sources* determined by the EPA to be a significant contributor of pollution.

See 38 Fed. Reg. 18,000-002 (1973) (amending 40 C.F.R. §§ 124-25).

<sup>59</sup> *Id.* at 18,000.

<sup>60</sup> See note 29 *supra*.

<sup>61</sup> 33 U.S.C. §§ 1342(b), (c) (Supp. II 1972).

<sup>62</sup> See notes 81-94 and accompanying text *infra*. To date, only two other states, Vermont and Ohio, have developed and submitted state programs to the EPA for approval. See 38

#### 4. *Non-Point Source Control*

The NPDES system is limited in application to point sources of pollution. As previously indicated, much pollution, especially from agriculture, stems from non-point sources.<sup>63</sup> The Federal Water Pollution Control Act Amendments of 1972<sup>64</sup> direct the EPA to issue "guidelines" for the identification and abatement of non-point sources of pollution, including agricultural activities.<sup>65</sup> These "guidelines" have not yet been promulgated, and it is uncertain whether they will be in the form of mandatory standards, or merely suggestions to assist state and local agencies in dealing with non-point sources.<sup>66</sup>

#### 5. *The Federal Insecticide, Fungicide, and Rodenticide Act*

In response to the growing pesticide pollution problem, Congress in 1970 passed the Federal Insecticide, Fungicide, and Rodenticide Act<sup>67</sup> (FIFRA) to control the sale, use, labeling, and advertisement of toxic pesticides. Although most requirements of the Act directly affect only manufacturers and retailers,<sup>68</sup> the Act also limits the availability of certain pesticides to the farmer. This legislation does not in any way restrict or control the use of pesticides whose sale has not been proscribed. However, a companion provision of the Food, Drug, and Cosmetic Act<sup>69</sup> directs the EPA to publish permissible tolerances in food and food additives for all pesticides subject to the registration requirements of FIFRA.<sup>70</sup> These tolerances have been published for various food crops.<sup>71</sup> Any crop exceeding the specific tolerance for toxic residue content may not be used for human, and in many cases animal,

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Fed. Reg. 35,529-30 (1973). The state program will be approved only if it contains minimum program elements, and covers at least the operations listed in note 58 *supra*. Minimum state program elements are promulgated in 40 C.F.R. § 124 (1973). The state is free under these regulations to set more stringent standards than the federal requirements if it so chooses.

<sup>63</sup> See note 12 *supra*.

<sup>64</sup> 33 U.S.C. § 1314 (Supp. II 1972).

<sup>65</sup> *Id.*

<sup>66</sup> See notes 113-19 and accompanying text *infra*.

<sup>67</sup> 7 U.S.C. §§ 135-35k (1970).

<sup>68</sup> 7 U.S.C. § 135(a) makes it unlawful for any person to "distribute, sell, or offer for sale" the various poisons covered by the Act, and prescribes various labeling and packaging requirements.

<sup>69</sup> 21 U.S.C. §§ 342-48 (1970).

<sup>70</sup> *Id.* §§ 346a(d), (e), (l) (Supp. II 1972).

<sup>71</sup> 40 C.F.R. §§ 162, 180 (1973).

consumption. As a result, farmers who allow their crops to exceed permissible tolerances will be left with unmarketable products.

### B. *Present State Controls*

Of the major state and local restrictions described below, few specifically affect agricultural sources of pollution. Except with respect to pesticides, prohibitions are of a general nature.

#### 1. *State Water Quality Standards*

In compliance with the provisions of the Federal Water Pollution Control Act relating to state promulgation of water quality standards,<sup>72</sup> New York has undertaken an ambitious program of water quality classification encompassing all surface and ground waters in the state. The Water Resources Law of 1972<sup>73</sup> authorized and directed the Director of the Department of Environmental Conservation to classify all waters in the state by categories based on best use and the public interest.<sup>74</sup>

Five classifications have been adopted for fresh surface waters, varying from Class AA waters suitable for drinking and any other use to Class D waters suitable only for agricultural or industrial purposes.<sup>75</sup> Similarly, four classifications have been adopted for tidal salt waters, and three for ground waters, with additional classifications for boundary and other special waters.<sup>76</sup> Maximum permissible tolerances have been set in each category for pollutants such as solids, sewage, sludge, oil, metals, and other toxic wastes including agricultural pollutants.<sup>77</sup>

All waters in the state have been placed in one of these categories, according to their best use.<sup>78</sup> The "teeth" of the scheme

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<sup>72</sup> Each state must promulgate water quality standards and submit them to the EPA for approval. 33 U.S.C. § 1313(a) (Supp. II 1972). Guidelines for New York were established by the EPA in March 1972. 40 C.F.R. § 120 (1972). EPA reviewed New York's standards, and in January and March of 1973 notified the state that certain revisions were necessary to make state standards consistent with federal law. The state failed to make necessary revisions within the required 90 day period; therefore, on December 20, 1973, the EPA proposed a series of revisions reclassifying several state waters. 38 Fed. Reg. 34,895-96 (1973).

<sup>73</sup> N.Y.E.C.L. § 15-0101 (McKinney 1973).

<sup>74</sup> Classifications are established in 6 N.Y.C.R.R. §§ 701-03 (1974).

<sup>75</sup> *Id.*

<sup>76</sup> *Id.*

<sup>77</sup> For example, no untreated sewage is permitted in Class AA surface fresh water, while higher tolerances are set for Class D water. See 6 N.Y.C.R.R. § 701.3 (1974). In addition, certain fresh waters may be classified as "trout" waters in which higher levels of dissolved oxygen must be maintained. *Id.*

<sup>78</sup> 6 N.Y.C.R.R. §§ 800.1-944.9 (1966-67).

lie in a general prohibition making it unlawful for any person to create or contribute to a violation of established water quality standards.<sup>79</sup> Given this classification scheme and the related maximum permissible tolerances, the specific amount of any pollutant that any one person may discharge depends on two factors: the specific classification assigned to the receiving water and the amount of the pollutant already present in that water or being discharged into it simultaneously by other polluters. Because this information is not readily available to the average person, including individual farmers, it is difficult to know if, how, and when one will be in violation of the law.<sup>80</sup>

## 2. *State Pollution Discharge Elimination System (SPDES)*

The federal NPDES legislation previously discussed gives each state, in lieu of a federally-imposed program, the option to develop and administer its own permit system for the control and elimination of point sources of pollution.<sup>81</sup> Even before NPDES, New York had a limited discharge permit system,<sup>82</sup> but it was not sufficient to meet NPDES requirements. In May 1973, the New York legislature amended Article 17 of the Environmental Conservation Law<sup>83</sup> to create the State Pollution Discharge Elimination System (SPDES) and thus to meet NPDES requirements.

SPDES presently includes a number of specific provisions critical to agriculture. First, a permit is required to discharge pollutants from any point source, whether new or existing, into any waters of the state.<sup>84</sup> The addition of a permit requirement for existing sources is a significant expansion over past state provisions.<sup>85</sup> As was the case under previous law, individual household septic systems serving three or fewer families or ten or fewer persons are excluded from SPDES requirements, but all agricultural activities, unless excluded by subsequent regulations, are

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<sup>79</sup> N.Y.E.C.L. § 17-0501 (McKinney 1973); 6 N.Y.C.R.R. § 701.2 (1974).

<sup>80</sup> See note 143 and accompanying text *infra*.

<sup>81</sup> See note 61 *supra*.

<sup>82</sup> N.Y.E.C.L. § 17-0505, -0507, -0701, -0703 (McKinney 1973); N.Y. PUB. HEALTH LAW §§ 1230-31 (McKinney 1971). This system covered only new outlets, or old sources discharging sewage or industrial wastes.

<sup>83</sup> N.Y.E.C.L. §§ 17-0801-0829 (McKinney 1973). See also *id.* §§ 17-0105, -0303, -0505, -0507, -0509, -0511, -0701, -0703, -0901, -1701, 71-1929, 71-1939. This measure was signed by the Governor on June 22, 1973, and took effect September 1, 1973.

<sup>84</sup> N.Y.E.C.L. § 17-0803 (McKinney 1973).

<sup>85</sup> See note 82 *supra*.

clearly subject to SPDES.<sup>86</sup> Second, permits will be issued only after public notice of an application has been given and after interested parties have been given at least thirty days to make comments. In addition, the system guarantees public access to information relating to the potential discharge.<sup>87</sup> Third, certain types of discharges are forbidden,<sup>88</sup> and no permit will be issued for any discharge which does not conform to state effluent limitations, new toxic and pretreatment standards, established water quality standards, and certain other criteria.<sup>89</sup> Fourth, permits will control the quantity, quality, composition, time, and duration of any discharge allowed, and may be renewed periodically for terms not exceeding five years.<sup>90</sup> Finally, violations of SPDES provisions can result in loss of permits, in abatement, in fines ranging from \$250 to \$10,000, and in imprisonment of up to one year per violation.<sup>91</sup> Each day of non-compliance constitutes a separate violation.<sup>92</sup>

The scope and further aspects of SPDES remain to be seen. Regulations implementing the basic legislation have not yet been issued;<sup>93</sup> therefore, the full impact of SPDES upon agriculture is still undetermined.<sup>94</sup>

### 3. Public Health and Watershed Regulations

Waters constituting public water supplies, or flowing into any watersheds used as public water supplies, receive special protection under state and local public health and watershed regulations.<sup>95</sup> These controls provide special classification<sup>96</sup> and enforcement

<sup>86</sup> For example, "point sources" are defined so as to include ditches, channels, and concentrated animal feeding operations. N.Y.E.C.L. § 17-0105(16). Similarly, the definition of "pollutant" includes agricultural wastes. *Id.* § 17-0105(17).

<sup>87</sup> *Id.* § 17-0805.

<sup>88</sup> *Id.* § 17-0807. Only a very limited range of pollutants, such as radioactive discharges, fall within the "forbidden" category.

<sup>89</sup> *Id.* § 17-0811.

<sup>90</sup> *Id.* §§ 17-0815, -0817.

<sup>91</sup> *Id.* §§ 71-1929(1), -1933(1).

<sup>92</sup> *Id.*

<sup>93</sup> Regulations for exclusions from SPDES, for effluent limitations, for new source performance standards, and for the pretreatment standards mandated by federal law have not yet been promulgated. See notes 52 & 62 *supra*. Preliminary indications are that forthcoming SPDES regulations will in large part adopt the standards and exclusions of NPDES. Telephone Conversation with Department of Environmental Conservation, Albany, New York, Jan. 10, 1974.

<sup>94</sup> See note 144 and accompanying text *infra*.

<sup>95</sup> 10 N.Y.C.R.R. §§ 1.11-21.32 (1973) (State Sanitary Code); *id.* § 170 (1971).

<sup>96</sup> All waters used for drinking are classified as AA or A. 6 N.Y.C.R.R. § 701.3 (1974). This limits the nature and amount of pollutants which may enter such waters. Basically, no substances deleterious to the waters' use for drinking are permitted; these would include sewage, manure, oil, pesticides, and excessive amounts of nitrogen and phosphorus. See note 95 *supra*.

procedures<sup>97</sup> for those waters and place special restrictions on agricultural operations.<sup>98</sup>

#### 4. Stream Protection

The New York Stream Protection Act<sup>99</sup> has certain provisions which are applicable to agricultural activities. These provisions include the following prohibitions: (1) no dyes, tars, refuse, lime, acid, oil, or other deleterious or poisonous substances may be thrown or allowed to run into the waters of any stream in quantities injurious to fish, wildlife, or waterfowl, or to their propagation;<sup>100</sup> (2) no soil, earth, refuse, or other solid substances, including manure, may be deposited or allowed to enter any tributary inhabited by trout.<sup>101</sup>

#### 5. Pesticide Control

Pesticides<sup>102</sup> represent the one area wherein controls directed at a specific source of agricultural pollution have been established.

<sup>97</sup> Investigation and enforcement are primary responsibilities of the local health officer and watershed inspector, where they have been appointed, or of the county or regional health officer where local officials are unavailable. 10 N.Y.C.R.R. §§ 1.11-21.32 (1973). In practice, the town or towns using the water supply will employ watershed inspectors with whom the primary responsibility for investigation, enforcement, and abatement will lie.

<sup>98</sup> Although subject to some local variation, regulations governing Canandaigua Lake are typical. *Id.* §§ 132.1(d), (g) (1962). Those regulations impose the following limitations on agriculture:

(1) No animals or poultry are allowed to stand, wade, swim, or be washed or watered within 300 feet of any water supply intake, and no watering place may be maintained anywhere, in such manner as will allow any excrement into such water.

(2) No animal or poultry stable, barn, house, or yard may be located in any manner permitting drainage, leachings, or washings therefrom into such water.

(3) No manure pile may be maintained within 100 feet of any such water.

(4) No privy or receptacle for human or animal excretion is permitted within 100 feet of such water unless maintained in watertight containers which are emptied regularly.

(5) Any new facilities for human or animal sanitary disposal require a permit from the local building inspector upon approval of the watershed inspector.

(6) No animal refuse may be spread on or buried beneath the surface of the ground within 100 feet of such water.

<sup>99</sup> N.Y.E.C.L. § 11-0503 (McKinney 1973). These regulations are aimed at a significant source of wildlife destruction. Some of the largest fish kills in recent years are attributable to the dumping of raw manure and fertilizer into rivers and streams. Their high organic content severely depresses the concentration of dissolved oxygen, and their nitrogen creates ammonia which interferes with oxygen assimilation, resulting in the widespread killing of fish and wildlife. Denit, *supra* note 20, at 6-16.

<sup>100</sup> N.Y.E.C.L. § 11-0503 (McKinney 1973).

<sup>101</sup> *Id.*

<sup>102</sup> See note 11 *supra*.

The New York Environmental Conservation Law empowers the Director of the Department of Environmental Conservation with exclusive jurisdiction over pesticide matters.<sup>103</sup> The Department of Environmental Conservation in turn has issued a comprehensive set of regulations governing pesticide manufacture, sale, and use.<sup>104</sup>

In the prior discussion of pesticide mechanics, specificity of effect and limitations on long-lasting chemical residues were advocated.<sup>105</sup> The New York regulations, which adopt both these approaches, create a three-fold classification scheme. A first class of pesticides, including those with long-lasting toxic residues, is restricted to use in emergency health situations.<sup>106</sup> A second class, the so-called restricted pesticides, may be bought and sold only after a permit is obtained.<sup>107</sup> A third class of essentially unregulated, garden variety pesticides can be purchased and used in small amounts without a permit.<sup>108</sup>

The regulations also adopt a controlled use approach to ensure some specificity of effect. Certain pesticides are restricted to use against specific organisms,<sup>109</sup> while for others specific application times and techniques are prescribed.<sup>110</sup> A third approach adopted for some chemicals limits the concentrations or maximum yearly amounts per acre that may be used.<sup>111</sup> Again, this technique is applied to the longer-lasting compounds, and is designed to prevent residue build-up.

At present, pesticide regulations cover about seventy compounds.<sup>112</sup> Under the existing controls many, but not all, agricultural applications of pesticides require a permit.

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<sup>103</sup> N.Y.E.C.L. § 33-0303 (McKinney 1973).

<sup>104</sup> 6 N.Y.C.R.R. § 326 (1972) deals with pesticides generally. 6 N.Y.C.R.R. § 327 (1972) deals with chemicals used to control aquatic vegetation; use of chemicals for fish control is regulated by 6 N.Y.C.R.R. § 328 (1972); aquatic insect control is governed by 6 N.Y.C.R.R. § 329 (1972).

<sup>105</sup> See notes 22-24 and accompanying text *supra*.

<sup>106</sup> This class includes DDT, Endrin, and mercury compounds. 6 N.Y.C.R.R. §§ 326.2(c)-(d) (1973).

<sup>107</sup> *Id.* § 326.2(a).

<sup>108</sup> This class would include such common household pesticides as Sevin and Raid Garden Spray.

<sup>109</sup> See, e.g., 6 N.Y.C.R.R. § 326.8(c)(6) (1973) (regulation governing Heptachlor).

<sup>110</sup> See *id.* §§ 326.2(b)(4), 326.8(c)(4) (1973) (regulations governing Chlordane).

<sup>111</sup> *Id.*

<sup>112</sup> *Id.* § 326.

## III

## DEFICIENCIES IN EXISTING CONTROLS

The final parts of this Note develop proposals for new controls on agricultural pollution. In view of the existing controls and their inadequacies, and in view of the mechanics of pollution previously discussed, the following suggestions are made for the proper control of the significant effect of agricultural wastes on the water pollution problem in New York State.

A. *General Problems*

When one examines the broad range of federal, state, and local controls which potentially affect the individual agricultural operation in New York, two general deficiencies stand out: the lack of meaningful controls on non-point sources of pollution and the absence of regulations encompassing agricultural-sources of pollution, whether from point or non-point sources.

1. *Lack of Non-Point Source Control*

An analysis of the major federal and state programs in the field of water pollution control reveals that emphasis is placed primarily, and often totally, on point sources.<sup>113</sup> Although the emerging federal and state water quality standards in theory encompass pollution from both point and non-point sources, the main efforts at enforcing these standards are based on permit systems such as NPDES or SPDES, which are aimed at and limited to point sources of pollution.<sup>114</sup>

Moreover, even those schemes which have been adopted for point source control have serious potential loopholes. There is no magic definition that makes one source a point and another a non-point variety. Often it is relatively easy intentionally to discharge pollution in a manner which circumvents NPDES or SPDES requirements. For example, irrigation discharges from pipes or ditches are potentially subject to NPDES.<sup>115</sup> Yet the EPA concedes that the same water, causing the same pollution, escapes NPDES

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<sup>113</sup> Yet one-third of all water pollution in the state comes from non-point sources, positive evidence of the deficiencies in existing legislation. See note 12 *supra*.

<sup>114</sup> Neither federal nor state regulations establish permit systems for non-point discharges. In fact, in the entire federal-state regulatory scheme, there is but one specific provision covering non-point sources: 33 U.S.C. § 1314 (Supp. II 1972). See notes 117-19 and accompanying text *infra*.

<sup>115</sup> 38 Fed. Reg. 18,001 (1973).

requirements if it is released in a "diffuse" form.<sup>116</sup> In the absence of regulations placing restrictions on non-point sources, it is a simple matter for a farmer to be less careful about putting in ditches to collect runoff and in this way to avoid the necessity of compliance with time-consuming permit requirements.

The potential effect of the Federal Water Pollution Control Act Amendments of 1972, which require the EPA to promulgate "guidelines" for non-point source pollution control, already has been mentioned.<sup>117</sup> However, this legislation offers no guarantee of improvement in New York State, since it does not seem to impose mandatory requirements upon either the federal or the state government to develop a system of non-point source control.<sup>118</sup> The section merely authorizes federal assistance to the states in the form of technical information. The states are free to use or to ignore the federal guidelines. Thus the formulation and promulgation of controls for non-point sources is still a matter of state responsibility and state initiative. The proposals advanced herein are in direct response to the need for a state scheme to control point and non-point pollution from agricultural sources. As of the beginning of 1974, fifteen other states had adopted at least some form of agricultural source controls.<sup>119</sup>

## 2. Lack of Source-Specific Regulations

With the exception of pesticide regulations,<sup>120</sup> there are presently no controls in New York tailored to specific sources of agricultural pollution, whether from point or non-point sources. Although there is presently some movement toward a new phase<sup>121</sup>

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<sup>116</sup> *Id.* The EPA states that "[i]f waters from an irrigation system enter navigable waters from diffuse sources, then no discharge permit is required as there is no point source of discharge."

<sup>117</sup> See notes 64 & 67 and accompanying text *supra*.

<sup>118</sup> Those provisions of the Water Pollution Control Act Amendments of 1972 (33 U.S.C. §§ 1251-1376 (Supp. II 1972)) which have imposed mandatory requirements upon the states consistently use the words "standards" or "limitations." See, e.g., 33 U.S.C. §§ 1316(a), (e) (Supp. II 1972) (establishing "National Standards of Performance" and making operation in violation of such standards illegal); *id.* §§ 1317(a), (d) (establishing toxic and pretreatment effluent standards and making operation in violation thereof illegal). Compare *id.* § 1314 (use of term "guidelines" and absence of illegality clause indicates congressional intent that EPA directives be nonmandatory).

<sup>119</sup> They are: Arizona, California, Colorado, Indiana, Iowa, Kansas, Maine, Massachusetts, Minnesota, Missouri, Nebraska, Ohio, Oklahoma, Texas, and Vermont. Coote, *supra* note 13, at 57; note 62 *supra*.

<sup>120</sup> See note 104 *supra*.

<sup>121</sup> See notes 1-5 and accompanying text *supra*.

of regulatory development—the promulgation of source-specific regulations<sup>122</sup>—this trend must be accelerated.<sup>123</sup>

### B. *Deficiencies in Federal Controls*

In addition to the general problems outlined above, specific deficiencies exist in federal laws and regulations.

#### 1. *General Nature of Federal Efforts*

It has been observed that federal programs seeking to foster or mandate state action generally restrict themselves to grants, research, formulation of standards, and the like.<sup>124</sup> Quite possibly, the limited reach of these federal efforts reflects an appropriate division of responsibility in a federal system. But the unfortunate effect of such a division remains: relatively few federal controls directly affect the day-to-day agricultural pollution which occurs in New York State.<sup>125</sup> As a consequence, the state itself must take the initiative in controlling the daily pollution occurring within its boundaries.

#### 2. *The Questionable Scope of Federal Authority*

The broad scope of asserted federal authority over agricultural pollution in New York, in terms of both direct federal controls and state substitutes for federal regulations, raises substantial questions of constitutionality. The federal position, as developed by the EPA, is that federal authority to control pollution extends to almost every body of water in the country. Only by a discretionary delegation of some authority to the states<sup>126</sup> has the

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<sup>122</sup> The generally broad Federal Water Pollution Control Act now directs the EPA to promulgate new-source standards for feedlots and other agricultural sources. See notes 2 & 52 *supra*.

<sup>123</sup> The absence of such regulations has at least three disadvantages. First, when all types of pollution are categorized under broad programs, there is little effective control of many significant pollution sources. The problems related earlier in this Note with respect to non-point source control are good examples. Second, in the absence of specific regulations embodying complex technology, the average farmer, even if he wishes to prevent pollution, may not know how properly to go about it. Regulations both restrict and educate; the latter purpose is not served when the polluter is not alerted to the problems he has created. Finally, unless regulations are tailored to specific sources, broad directives may overlook the economic and technical realities associated with specific problems. A broad prohibition against stream pollution by manure is fine in itself, but does not address the problem of the costs incurred by the farmer in disposing of 27,000 pounds of manure per cow per year.

<sup>124</sup> See note 29 *supra*.

<sup>125</sup> *Id.*

<sup>126</sup> 33 U.S.C. §§ 1313, 1342 (Supp. II 1972) (giving states option to act in lieu of federal government).

federal government presently confined itself to primary enforcement responsibility over a limited variety of waters, namely interstate, coastal, and larger intrastate waters.<sup>127</sup> Nevertheless, latent federal authority is said to exist over smaller intrastate waters. This conclusion follows from a recent, and as yet untested, interpretation given by the federal government to the term "navigable waters."

Federal authority to exercise control over various waters ultimately rests upon the commerce clause of the Constitution, construed to give Congress the power to regulate, in general, waters which are capable of use as interstate highways.<sup>128</sup> This power therefore potentially extends to coastal, interstate, and "navigable" waters. Since authority over "navigable" waters stems from the interstate commerce clause, the traditional test of a "navigable" water has always implied the presence of two elements: trade and travel,<sup>129</sup> and some form of interstate movement of goods or persons.<sup>130</sup> Yet in the last five years the definition and scope of the term "navigable waters," and consequently the range of waters over which the federal government may exercise its authority, has been greatly expanded.

Two previously discussed developments are indicative of this expansion: the broadening of the scope of the Rivers and Harbors Act of 1899<sup>131</sup> to make it applicable to virtually all waters in the country<sup>132</sup> and the expansive definition given by Congress to the term "navigable waters" in the Federal Water Pollution Control Act Amendments of 1972.<sup>133</sup> The effect of these provisions is to remove the requirement of interstate transport from the definition of "navigable waters." Thus any intrastate water capable of floating so much as a log or a canoe apparently becomes subject to federal regulation.

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<sup>127</sup> See notes 128-33 and accompanying text *infra*.

<sup>128</sup> *United States v. Appalachian Electric Power Co.*, 23 F. Supp. 83 (W.D. Va. 1938), *aff'd*, 107 F.2d 769 (4th Cir. 1939), *rev'd on other grounds*, 311 U.S. 377 (1940), *rehearing denied*, 312 U.S. 712 (1941), *petition for construction of mandate denied*, 317 U.S. 594 (1942).

<sup>129</sup> *The Daniel Ball*, 77 U.S. (10 Wall.) 557, 563 (1871); *Ingram v. Associated Pipeline Contractors*, 241 F. Supp. 4, 6 (E.D. La. 1965).

<sup>130</sup> *Economy Light & Power Co. v. United States*, 256 U.S. 113, 123 (1921); *The Daniel Ball*, 77 U.S. (10 Wall.) 557, 565 (1871).

<sup>131</sup> Exec. Order No. 11,574, *supra* note 41; note 41 and accompanying text *supra*.

<sup>132</sup> See note 39 *supra*.

<sup>133</sup> See 33 C.F.R. §§ 2.21-74 (1973) (listings for navigable waters). Under determinations to date, New York's navigable waters include Greenwood Lake, the New York State Barge Canal System, Onondaga Lake, Seneca Lake, and portions of the Salmon and Allegheny Rivers. 33 C.F.R. § 2.54 (1973).

If the expansive definition of navigable waters is challenged and struck down by the courts, federal and state regulations based upon such an interpretation might be invalidated. In view of the questionable and untested scope of federal authority over purely intrastate waters, states should not rely on federal authority or programs as the basis for control of localized pollution.

### 3. *The Limited Scope of Federal Controls*

An examination of the cutoff points established by the EPA for NPDES and of the cutoff points which are applicable to the Rivers and Harbors Act of 1899 reveals that federal efforts at direct control are limited to large-scale operations.<sup>134</sup> Unfortunately, a majority of the farms in New York State fall below the present federal cutoff points and are therefore not subject to these provisions.<sup>135</sup> Furthermore, the establishment of cutoff points creates, for certain operations, an incentive to avoid the control scheme. For example, NPDES applies only to beef cattle operations of 1,000 head or more.<sup>136</sup> It may be more economical simply to maintain a marginally smaller herd of 950 cattle and evade NPDES requirements, while generating nearly the same amount of pollution.<sup>137</sup>

These considerations suggest that the state, in exercising its options under federal legislation, or on its own initiative, should adopt cutoff points which subject at least the average-sized New York farming operation to pollution controls.

### C. *Deficiencies in State and Local Controls*

#### 1. *Lack of an Overall Plan*

Present state pollution controls in New York regulate water pollution in general<sup>138</sup> and place permit requirements on point

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<sup>134</sup> See note 58 and accompanying text *supra*.

<sup>135</sup> The average farm in New York State has about 200 acres. See note 7 *supra*. Even adopting a liberal pollution control restriction of three cows per acre (see Coote, *supra* note 13, at 21) such a farm can support only 600 cows; 100 below the federal cutoffs for dairy cows, and 400 below that for slaughter-bound cattle.

<sup>136</sup> See note 58 *supra*.

<sup>137</sup> The requirement that NPDES also apply to any additional agricultural point source determined by the EPA to be a significant contributor to pollution (38 Fed. Reg. 18,000-001 (1973)) is a catchall provision which provides a potential remedy for this situation, but it requires the government, rather than the operator, to take the inspection and enforcement initiative. If a farmer has 1,000 head of cattle he must get a permit. If he has only 995, he waits for the EPA to tell him to get a permit.

<sup>138</sup> See N.Y.E.C.L. Article 17, Title 1 (McKinney 1973).

sources only.<sup>139</sup> The only sources of agricultural pollution subject to specific regulation are pesticides<sup>140</sup> and certain agricultural operations in watersheds.<sup>141</sup> An overall state plan still requires the following additional elements: (1) extension of controls to non-point sources; (2) specific controls on manure and fertilizer use and improvement of existing pesticide regulations; and (3) tax incentives to cover at least a part of pollution control costs.

## 2. *Difficulty in Interpretation of State Water Quality Standards*

State law prohibits pollution discharges which create or contribute to a violation of the state water quality standards assigned to the particular water involved.<sup>142</sup> For any given discharge, two factors determine whether or not it is illegal: the particular classification assigned to the receiving water and the amount of similar pollution already present.

This scheme has several disadvantages. Neither the assigned standards nor the present amount of pollutant is likely to be known to or even determinable by the average farmer. The scheme is such that without expert advice one cannot determine if or when a particular discharge is illegal. A discharge containing a given amount of pollutant may or may not be illegal depending upon highly variable factors.<sup>143</sup> To combat this problem, provision has been made in the regulations proposed herein to permit the farmer to obtain free assistance from the Department of Environmental Conservation or another appropriate state agency in interpreting and complying with state water quality standards.

A second major drawback to the present water quality scheme is that it tends to favor the first polluter. The first farmer to deposit a pound of nitrogen in a pure stream may not commit an illegal act. But the fifteenth farmer to deposit one pound of nitrogen may cause the total stream content to exceed assigned tolerances. Thus the fifteenth farmer may be found to have committed an illegal act, although quantitatively he caused no more pollution than the fourteen persons before him. This inequity should be remedied by

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<sup>139</sup> See N.Y.E.C.L. § 17-0701 (McKinney 1973).

<sup>140</sup> See note 105 *supra*.

<sup>141</sup> See note 98 *supra*.

<sup>142</sup> See note 79 *supra*.

<sup>143</sup> To some degree, the SPDES permit requirements, where applicable, will remedy the situation. The farmer will provide raw data. The state will then determine if the discharge is illegal and will issue or deny a permit accordingly. To the extent that the SPDES system puts the burden on the state to determine potential violations or to give the farmer advice, this is a viable approach and should be expanded.

adoption of water quality standards supplementing the present scheme, so that any individual discharge of pollutants in excess of a specific amount or concentration will constitute an illegal act, regardless of its cumulative effect on the quality of the receiving water. Discharges which are presently prohibited would remain illegal, but additional discharges would also be prohibited if their toxic effects exceeded specified limits.

### 3. *The Limited Scope of SPDES*

Although regulations setting cutoff points for SPDES compliance have not yet been issued, the preliminary indications are that SPDES will simply adopt the minimum cutoffs necessary to secure federal approval.<sup>144</sup> That is, SPDES and NPDES may have the same or similar cutoff points. This would be a mistake. One of the main functions of state controls should be to regulate smaller sources of pollution than can be monitored by a federal program. Therefore the controls proposed herein recommend that SPDES be expanded to include smaller agricultural operations than are presently included under the optional state program provisions of NPDES.

### 4. *Additional Pesticide Control*

The existing state pesticide regulations are a step in the right direction. However, three additional techniques of pesticide control which have been suggested by environmental scientists<sup>145</sup> should be incorporated into present regulations. Present pesticide regulations generally permit preventive applications, that is, applications before any evidence of infestation exists. The first pesticide regulation change, therefore, should be to institute, at least for the more dangerous pesticides and probably as a general provision, an alternative "treat when necessary"<sup>146</sup> philosophy. A useful technique might be to require certification of infestation by a county extension agent or other agricultural specialist before a permit for use of certain pesticides is issued. Studies have shown that such an approach could reduce pesticide use by thirty to fifty percent without impairing crop protection.<sup>147</sup> Since it has been shown that farmers tend to use too much pesticide, such regulations also would save the farmer money.

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<sup>144</sup> See note 93 *supra*.

<sup>145</sup> Pimentel, *supra* note 5, at 12-19.

<sup>146</sup> *Id.* at 13.

<sup>147</sup> *Id.*

A second change would involve the addition of a fourth category of pesticides, those which may be applied only by licensed applicators.<sup>148</sup> This innovation would help to reduce pollution caused by accidents during application. A third regulatory modification should promote increased understanding of the specific effect and necessary application of pesticides by establishing additional labeling and testing requirements. When preliminary studies warrant, experimental, closely supervised marketing of new pesticides should be permitted to allow the manufacturers to obtain reliable data on the effect of new compounds.<sup>149</sup>

### 5. *The Lack of Cost Incentives*

A recent study has suggested that a moderate level of pollution control regulation may in fact increase income on some New York farms by fostering better management techniques.<sup>150</sup> The same study, however, found that restrictions which increased farm income, or caused only nominal decreases, unfortunately brought about only insignificant decreases in nitrogen and phosphorus pollution.<sup>151</sup> Only at a level of restriction which entailed adverse economic consequences was significant pollution control attained.<sup>152</sup> The implication seems clear: effective pollution controls most likely will result in decreased net revenue for the average New York farmer.<sup>153</sup>

If one takes the view that the farmer provides a vital service to all citizens in producing food, a service in which all citizens therefore have an interest, a fair approach would be to distribute at least part of the costs of pollution control among the general

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<sup>148</sup> *Id.* Such a classification should include TEPP and parathion.

<sup>149</sup> *Id.* at 12-13.

<sup>150</sup> Coote, *supra* note 13, at 140-42.

<sup>151</sup> *Id.* at 155-65.

<sup>152</sup> *Id.*

<sup>153</sup> Coote's study compared the economic impact of two "levels" of restrictions on manure disposal. *Id.* at 63-64. At each level of restriction, pollution control standards were applied in ten areas: application rates for manure, application rates for nitrogen and phosphorus, soil permeability variations, slope control, distance to nearest surface water, time of year, distance to nearest dwelling or public road, minimum land area, pretreatment, and disease control. *Id.* At the more restrictive level, more stringent requirements were imposed in each area. For example, at "Level 1" no manure could be spread within 50 feet of the nearest surface water; at "Level 2" this distance was increased to 100 feet. *Id.* Coote found little adverse economic effect at "Level 1," but also found little decrease in pollution. At "Level 2" both pollution and net farm income decreased significantly. *Id.* at 155-65. Since the proposals made in this Note are at least as restrictive as those imposed by Coote's "Level 2," the implication that net farm income will drop seems unavoidable.

population.<sup>154</sup> In the absence of specific legislative incentives for the farmer, the market system is likely to pass costs on to the consumer in the form of higher food prices. A preferred approach would be to create tax incentives for the farmer who is in compliance with pollution controls. Upon certification of compliance by an appropriate state agency, the farmer should be eligible for a tax exemption or deduction of some maximum dollar figure or percentage of his total revenue.<sup>155</sup> However, since precise data on the effect of pollution controls on farm income are not available, such a system of tax incentives should be re-evaluated periodically to ensure that it continues to reflect the actual economic effects of pollution control programs upon farmers.

#### IV

##### PROPOSED SOLUTIONS

Two types of proposals are advanced herein. First, a general "package" of amendments and additions to laws and regulations will be suggested and the major elements of this package outlined. The precise form and language needed to transform each of these elements into law will not be prescribed, however, since some of these elements, such as tax reform, go beyond the scope of agricultural pollution. Second, specific proposals will be made in the form of an annotated set of suggested laws and regulations for control of the two primary sources of agricultural pollution for which no such controls presently exist, animal wastes and fertilizers.

##### A. *General Amendments and Additions*

To provide New York State with the comprehensive system of controls over agricultural pollution which has been recommended throughout this Note, several general proposals should be implemented.

(1) The state should create a permit and monitoring system for the control of non-point sources of water pollution. This aim can be accomplished by amending Article 17 of the Environmental Conservation Law to provide for such a system and by the prom-

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<sup>154</sup> Certainly one should not be asked to compensate any farmer for mismanagement or for unnecessary pollution. But, to the extent that some pollution will normally occur in farming, and to the extent that controls on such pollution will inevitably decrease farm revenue, economic incentives should be provided to foster compliance and distribute costs.

<sup>155</sup> These figures should be set to allow compensation for some, but not all of the farmer's pollution control costs. Partial compensation would preserve the incentive to better management.

ulgation of source-specific regulations by the Department of Environmental Conservation, including specific controls over the use and disposal of animal wastes and fertilizers:

(2) The state should provide additional technical assistance to farmers to aid them in the interpretation of and compliance with state water quality standards. Amendments and additions to the Environmental Conservation or Agriculture and Markets Law and to the regulations can provide for delegation of this task to appropriate state agencies.<sup>156</sup>

(3) New regulations prohibiting the discharge or drainage of specified quantities of pollutants should be promulgated by the Department of Environmental Conservation, regardless of the overall effect of such individual discharges on the receiving waters. This can be accomplished by making appropriate additions to Article 17, Title 5, of the Environmental Conservation Law.<sup>157</sup>

(4) SPDES requirements should be made applicable to at least the average-sized beef, dairy, poultry, sheep, and swine operations found in New York State.<sup>158</sup> For this purpose, it will be necessary to amend Article 17, Title 8, of the Environmental Conservation Law and to add corresponding regulations.

(5) Additional pesticide pollution protection should be provided through appropriate additions or amendments to Article 33 of the Environmental Conservation Law and to Title 6, New York Codes, Rules and Regulations, Chapter IV, Subchapter A, Sections 320-29. The new controls should limit pesticide use to situations involving actual or impending infestation, require application by licensed applicators, and mandate for all pesticides sold or used in

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<sup>156</sup> The existing county extension services may be the logical point of contact for such assistance. However, the existing exclusive jurisdiction of the Department of Environmental Conservation over water pollution matters should not in any way be diluted by the potential involvement of the Department of Agriculture in such a scheme.

<sup>157</sup> Such changes would be in addition to the existing water pollution prohibitions. It would then become a violation to cause or substantially contribute to the violation of existing water quality standards, or to allow a single pollution incident involving any quantity of pollutants in excess of specified amounts.

<sup>158</sup> The average-sized farm in the state is about 200 acres. See note 7 *supra*. But even this figure varies significantly in different counties and regions. Coote, *supra* note 13, at 139. Certainly SPDES should at least cover farms of the average size, and preferably also smaller operations. Regional figures for all types of New York farming operations should be used in setting SPDES cutoffs. Above all, the high federal NPDES cutoffs should not be adopted.

Although the specific figures and cutoffs to be adopted require additional technical consideration beyond the scope of this Note, some indication of appropriate figures may be had from levels for point and non-point controls adopted by other states. See tables set out in Appendix C, *infra*. These tables are reproduced from Johnson, Connor, Høglund & Black, *Implications of State Environmental Legislation on Livestock Waste Management*, in 1972 WASTE MANAGEMENT REPORT 77, 79.

the state approved labels or attached approved instructions stating those organisms against which use is intended and describing proper application times and techniques. They should also supervise experimental marketing of any new pesticide for a period of two years where preliminary data warrants such sale, and where the manufacturer posts a bond in an amount sufficient to cover the costs of potential environmental harm, with final approval for continued marketing beyond the experimental period made subject to a thorough review of the data gathered therein relating to specificity and toxic effect.<sup>159</sup>

(6) State income tax incentives, deductions, or exclusions should be created to permit the farmer to recover a significant portion of the costs, whether from capital expenditures or from decreased revenues, of compliance with federal, state, or local pollution controls. The tax law amendments should also provide for full re-evaluation of the necessity for such incentives after a period of three years.<sup>160</sup>

#### B. *Specific Controls for Animal Wastes and Fertilizers*

In order to implement the proposal which calls for non-point source control and for the promulgation of specific regulations dealing with the use and disposal of animal wastes and fertilizers, the appendices to this Note propose in annotated form a specific set of controls for the accomplishment of that purpose. Two items are set forth: amendments to the Environmental Conservation Law, which will provide guidelines and a basis of authority for regulations to be promulgated in the New York Codes, Rules and Regulations by the Department of Environmental Conservation, and the actual regulations themselves.

Both items are in a form compatible with the present structure and format of New York's statutory and regulatory scheme. Ap-

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<sup>159</sup> This proposal would cover the present deficiencies relative to pesticides which have been discussed previously. The additional labeling requirements seek to provide the farmer in plain language with information about the potential environmental effect of the compound used. The experimental aspects would be in addition to those which present law requires to be performed by the state agricultural experiment stations. See N.Y.E.C.L. § 33-0501 (1973). These same stations could supervise the additional requirements. The requirement that manufacturers post a bond to cover potential damage is an inexpensive form of insurance and should not cause objections from the makers, since such an experimental marketing period provides them with an inexpensive means of acquiring actual test data.

<sup>160</sup> This tax incentive proposal is very general, with no effort made to suggest percentages, maximums, or the like. The lack of actual cost data at this time requires that the results of the control program be monitored closely and that the tax incentives be adjusted in accordance with the actual burdens found to be placed upon the farmer by the new laws.

pendix A takes the form of a proposed bill for introduction in the New York legislature to effectuate the statutory changes which have been recommended. Appendix B is in the form of proposed regulations to be incorporated into the New York Codes, Rules and Regulations. Together, the proposed statutory and regulatory changes provide a specialized mechanism for dealing with the problems of animal wastes and fertilizers.<sup>161</sup>

### CONCLUSION

The increased concern of the public and legislators with the general problem of pollution has thus far largely ignored the less visible, yet substantial, problem of pollution from agricultural sources. It is manifest that present methods of pollution control fail to take account of the special difficulties involved in regulating the disposal of animal wastes and the use of fertilizers and pesticides by New York farmers. Greater public and legislative awareness of these specialized problems is required in order to arrive at an effective plan and appropriate methods of control which will reflect both the interest of the public in clean water and the economic interest of the state's farmers. The proposals presented herein are only a small step in that direction.

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<sup>161</sup> The proposed scheme is substantially based upon a comparative examination of the laws and pollution control techniques presently employed or proposed by several other states and countries. The standards of the State of Maine have been used as the principal model from which to develop controls appropriate in New York State. See MAINE DEP'T OF ENVIRONMENTAL PROTECTION, REGULATIONS, *supra* note 16.

## APPENDIX A

PROPOSED AMENDMENTS TO THE ENVIRONMENTAL  
CONSERVATION LAW<sup>162</sup>

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1: Title 3 of article seventeen of the Environmental Conservation Law is hereby amended by adding thereto a new section, to be section 17-0302, to read as follows:

§ 17-0302. *Promulgation of Source Control Regulations*

1. It is further recognized that pollution of the waters of this state occurs from both "point" and "non-point" sources, as such terms are defined in section 17-0105 of this article, and that regulations pertaining to specific point and non-point sources are necessary for the proper control of water pollution in this state.

2. The commissioner of the department is hereby authorized and directed to promulgate specific rules and regulations to properly control those point and non-point sources determined by the department to be significant contributors to the pollution of the waters of this state, and shall under such authority issue such regulations for at least the following sources of pollution:

a. agricultural sources of pollution including but not limited to animal and poultry wastes, commercial fertilizers, pesticides, soil erosion, ground seepage, runoff, discharge ditches, channels, or pipes.<sup>163</sup>

3. Where necessary or practicable, such rules and regulations as are prescribed or authorized by paragraph one of this section may be issued in conjunction with permit or registration systems for point and non-point sources as are now or hereafter established by title 8 of this article or by any other title or section thereof.

SECTION 2: Section 17-0105 of such law is hereby amended by adding

<sup>162</sup> The general purpose of this legislation is to provide the Department of Environmental Conservation with specific authority, independent of any federal legislation, for the control of both point and non-point sources of pollution, particularly from agricultural sources. It also provides a specific directive to the department to issue source-specific regulations for agriculture, and is compatible with the general proposals which have been made for a permit and registration system for non-point sources comparable to or as a part of SPDES. If and when such a non-point permit system is established, it would be necessary to amend Article 17, Title 8, and §§ 17-0701, -0703, -0901, -1701, -1739, -1929, -1933, and -1939 of the New York Environmental Conservation Law. A model for such an additional permit system is provided by the law which established the present SPDES system. Ch. 801, [1973] N.Y. Laws 196th Sess. 1500.

It may be argued that ample authority for such provisions exists under the present language of Article 17. Although this is possible, such authority should be clarified. Moreover, the suggested legislation has additional utility in mandating a new approach to regulation—that of source-specific controls—and in being compatible with the needed system for non-point source control.

<sup>163</sup> An inventory of pollution sources from areas other than agriculture may be included in the form of additional subparagraphs.

thereto two new subdivisions, to be subdivisions twenty-three and twenty-four, and to read as follows:

23. "Agricultural waste" means any form of environmental pollutant arising from or associated with agricultural, horticultural, or silvicultural operations, including nitrogen, phosphorus, pesticide residues, animal or poultry wastes, soil erosion, fertilizers, seepage, runoff, or other discharge containing such substances.

24. "Non-point" source means any diffused, nonconcentrated discharge, leaching, seepage, or runoff of discernible pollution, whether such pollution is discernible in quantity, quality, content, or effect.<sup>164</sup>

SECTION 3: Subdivision two of section 17-0303 of such law is hereby amended to read as follows:

2. The department shall have administrative jurisdiction to abate and prevent the pollution of waters of the state in the manner herein provided in accordance with the classification of waters adopted by the department pursuant to section 17-0301 and in accordance with the standards, criteria, limitations, rules and regulations, and permit conditions adopted, promulgated, or applied by the department pursuant to section 17-0302 of this title, pursuant to title 8 of this article, or pursuant to any other system now or hereafter established by provisions of this article to control point or non-point sources of pollution.<sup>165</sup>

SECTION 4: Section 17-0511 of such law is amended to read as follows:

§ 17-0511. *Restrictions on Discharge of Sewage, Industrial, Agricultural, or Other Wastes.*

The use of existing or new outlets, or point or non-point sources, which discharge sewage, industrial, agricultural, or other wastes into waters of this state is prohibited unless such use is in compliance with all standards, criteria, limitations, rules, and regulations promulgated or applied by the department pursuant to this article.

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<sup>164</sup> Since non-point sources are not easily determined, it may be necessary to establish their existence in other ways, including by evidence of their effect.

<sup>165</sup> This provision affirmatively establishes jurisdiction and is consistent with both the existing SPDES system for point source control and the proposed system for control of non-point sources, either as a part of or in addition to SPDES.

## APPENDIX B

PROPOSED REGULATIONS TO CONTROL USE AND  
DISPOSAL OF ANIMAL AND POULTRY  
WASTES AND FERTILIZER

*To Be Incorporated In:* Title 6, Official Compilation of Codes, Rules and Regulations, as Chapter IV, Subpart C, Part 400.

## Part 400

(Statutory Authority: Environmental Conservation Law  
§§ 17-0302, 17-0303)

SECTION 400.1: *Definitions.* When used in this part and unless context otherwise requires, the following words and phrases shall mean as follows:

a. "Department" shall mean the State Department of Environmental Conservation.

b. "Commissioner" shall mean the State Commissioner of Environmental Conservation or his agents.

c. "Animal or poultry wastes" shall mean the feces and urine of any species of animal or poultry, and any materials, such as straw, generally associated therewith.

d. "Fertilizer" shall mean any commercial compound used as a source of nutrient for any crop.

e. "Person" shall mean any individual, public or private corporation, political subdivision, government agency, department or bureau of the state, municipality, industry, partnership, association, firm, trust, business, estate, or any other legal entity whatsoever.

f. "Watercourse" shall mean any stream, river, lake, pond, brook, spring, bog, marsh, swamp, sinkhole, or any other body of water in this state, including surface and ground waters.

SECTION 400.2: *Purpose and Scope.* These regulations are promulgated for the control of non-point agricultural pollution from nitrogen and phosphorus compounds. They are applicable to all farming, agricultural, horticultural, or silvicultural activities in this state, unless such activities are specifically exempted herein or by other appropriate law or regulation.

SECTION 400.3: *Policy.* It shall be the policy of the department, as reflected in these regulations, to require, to the greatest degree practicable, the total recycling of all nitrogen and phosphorus compounds used in agricultural, farming, silvicultural, horticultural, or other related activities in a manner which will prevent the discharge, seepage, runoff, or release of these compounds into the watercourses of this state. Such policy requires that the amount and use of substances containing nitrogen and phosphorus be limited to that which can normally be expected to be properly utilized by plants, crops, and soil without loss to the environment. It shall further be the policy of the department to protect human and animal

health, minimize any other form of environmental pollution, and limit nuisances associated with animal and poultry wastes.<sup>166</sup> In the absence of specific provisions applicable to particular situations, the department shall be guided in its actions by the policies stated herein.

SECTION 400.4: *General Prohibitions*.<sup>167</sup> The following are generally prohibited with respect to the use or disposal of animal and poultry wastes or fertilizer in any manner by any person, without written authorization, granted upon substantial justification, from the department:

a. *Dumping into Watercourse*. No person shall dump, deposit, directly discharge, or otherwise allow to enter any watercourse any amount or concentration of raw animal waste, poultry waste, or fertilizers.<sup>168</sup>

b. *Maximum Application Rates*. Under no conditions and under no form of use or disposal of animal wastes, poultry wastes, and fertilizer may the combined total of nitrogen and phosphorus applied exceed the following limits per acre per year, except as permitted in Section 400.6(c) herein:

(1) 400 pounds of nitrogen and 160 pounds of phosphorus where crops are removed annually for at least two consecutive years including the year of application.

(2) 300 pounds of nitrogen and 120 pounds of phosphorus where crops are not removed annually for at least two consecutive years including the year of application. Such maximum application rates are subject to further reduction in accordance with Section 400.6 herein when necessitated by soil permeability conditions, or in any other case where the department determines that such maximum amounts will not be totally recycled without contamination of any watercourse.<sup>169</sup>

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<sup>166</sup> This statement is directed at the problems of odor, fleas, rodents, pathogens, and aesthetic deterioration associated with manure. For a discussion of these problems, see Coote, *supra* note 13, at 14, 26-28, 34, 46, 51-56. See also Bartrop, *Farm Wastes: Public Health and Nuisance Problems*, in PROCEEDINGS OF THE SYMPOSIUM OF THE INSTITUTE OF WATER POLLUTION CONTROL 24-28 (1970); Deisch, *Disease Transmission of Water Borne Organisms of Animal Origin*, in AGRICULTURAL PRACTICES AND WATER QUALITY 265-85 (1970).

<sup>167</sup> This section sets forth in concise fashion those practices which are generally prohibited. These general prohibitions, however, are subject to further modification by the other specific provisions of this regulation.

<sup>168</sup> This provision is aimed at the direct dumping of manure or fertilizer into any water. Such practice is directly in violation of water quality provisions, poses a hazard to humans, fish, and wildlife, and infringes on the rights of other riparian owners.

<sup>169</sup> The maximum rates prescribed herein are equivalent in New York to 40 tons of dairy manure per year on cropped land or 30 tons per year on fallow acres. Coote, *supra* note 13, at 18, 23. This creates a density limit of approximately 2.9 cows per acre on cropland and 2.2 cows per acre on other land. Although the limits chosen are lower than those adopted by Maine (see Coote, *supra* note 13, at 22), Coote found that such limits had little or no adverse effect on net farm revenue. *Id.* at 141. The lower limits are justified in New York because of the acute problem of eutrophication associated with phosphorus contamination (see note 21 *supra*) and by the greater density of animals in the state. In fact, some authorities feel even these rates are too high. Coote, *supra* note 13, at 20. Thus, these maximum rates are subject to further limitation when soil permeability requires, as described in § 400.7, or where the department otherwise determines that a pollution problem exists. If a particular farmer can establish that his operation has a normal uptake in excess of the maximum amounts, he can apply for a permit under this section.

c. *Application Limitation.* The use or disposal of animal and poultry wastes or fertilizer is prohibited at any time during or within a period of two hours immediately following any actual precipitation where such precipitation continues steadily for a period exceeding 30 minutes in any snowstorm or 10 minutes in any rainstorm, or at any other time where a significant amount of runoff, seepage, leaching, soil erosion, or flooding is likely to occur.

d. *Soil Erosion.*<sup>170</sup> Except as expressly permitted by specific provisions of these regulations, no person shall leave any land or field without crop or cover except to the extent necessary in preparation for planting, during which time sound practices of contour plowing and soil erosion control must be observed. Nor shall any person plow or uncover any land whose slope exceeds 20%, nor shall any person otherwise permit significant soil erosion to occur anywhere on his land or property.

e. *Approved Methods.* No person shall use, apply, or dispose of any animal wastes, poultry wastes, or fertilizers except in accordance with the approved methods prescribed by Section 400.6 herein.

SECTION 400.5: *Total Recycling of Nitrogen and Phosphorus.* Within the limits of the rates and conditions prescribed by this regulation, each person engaged in an agricultural, silvicultural, horticultural, or other related operation is required to estimate the total amount in pounds per acre per year that such operation will properly require for crop production and soil maintenance, including such amounts as will be lost harmlessly through mineralization and denitrification, and shall restrict the application per acre per year of nitrogen and phosphorus to those amounts.

In making such estimates the following figures may be used:

	<i>N-P Utilization Requirements</i>	
	(in pounds per acre)	
	N	P
<i>Crops</i>		
Corn	250	100
Hay	300	120
Oats	50	20
Potatoes	150	60
<i>Soil Maintenance</i>	42	16
<i>Other Harmless Loss</i>	25	5

The department shall, upon request and at nominal cost, assist persons in obtaining or making accurate estimates of nitrogen and phosphorus requirements.

<sup>170</sup> The greatest loss of nutrients to surface waters occurs through soil erosion. A system of regulations which foster total nitrogen and phosphorus utilization in crop production and soil maintenance may inadvertently increase pollution through greater soil erosion associated with increased cultivation. Since such a system is adopted here, since soil erosion is the primary mechanism of phosphorus transfer (see note 18 *supra*), and since phosphorus is critical to the eutrophication process in this state (see note 21 *supra*), the crop utilization concept adopted herein must be combined with strong measures to prevent soil erosion. See Coote, *supra* note 13, at 174-75.

SECTION 400.6: *Use and Disposal of Animal and Poultry Wastes.* Use and disposal of animal and poultry wastes is limited to the approved methods, rates, and permissible conditions set forth herein, except where a written variance, upon sufficient justification, has been obtained from the department.

a. *Spreading or Dumping of Solid Waste or Waste Sludge.* Spreading or dumping of solid animal and poultry wastes and waste sludge is an approved disposal method subject to the conditions and limitations set forth herein:

(1) Spreading or dumping of solid animal or poultry waste or waste sludge shall be limited to a maximum application rate for each soil type as indicated in Table I at the end of this Part (hereinafter referred to as "Table I").

(2) No spreading or dumping of such wastes is permitted on any ground frozen to a depth of two inches or more, or on any soils covered by one inch or more of snow, between December 15 and April 10 of any year. No spreading or dumping of such wastes is permitted at any other time where the ground is frozen to a depth of two inches or more or covered by one inch or more of snow, where the slope of such ground exceeds 8%. Where such spreading or dumping is permitted, applications may not exceed ten tons of waste or the rate shown in Table I, whichever is lower.<sup>171</sup>

(3) No spreading or dumping of such wastes is permitted at any time on slopes exceeding 20%.

(4) No spreading or dumping is permitted within 50 feet of the normal high water mark of any brook, stream, river, or other body of flowing water, or within 100 feet of any well, spring, lake, bog, swamp, marsh, pond, or other watercourse.<sup>172</sup>

(5) Spreading or dumping is prohibited in any other sinkhole, flood plain, or depression likely to carry running water during snow melt or heavy rainfall, except that such wastes may be spread in such places if immediately plowed under in conjunction with crop production.<sup>173</sup>

b. *Piling of Animal and Poultry Wastes or Sludge.* Piling of animal and poultry wastes or sludge is an approved method of temporary disposal subject to the conditions and limitations set forth herein:

<sup>171</sup> The purpose of this provision is to prevent pollution through excessive runoff. Studies of New York weather establish that the greatest probability of frozen ground and snow occurs between December 15 and April 10. Coote, *supra* note 13, at 44. During this period the maximum application rates given in § 400.4 should be decreased further, up to 92%. *Id.* at 60, 61. The figure chosen is 33% of the maximum permissible rate and is subject to further reduction in accordance with Table 1, where soil permeability requires.

Between December 15 and April 10 no such disposal is permitted on frozen or snow-covered ground. But since more northerly farms have longer winter periods (*id.* at 43), farmers may spread before and after those dates even if the ground is frozen or snow covered. To provide protection, however, such disposal may not occur on slopes and may not exceed a total of ten tons of waste per acre per year. These provisions are similar to Maine regulations. See MAINE DEP'T OF ENVIRONMENTAL PROTECTION, REGULATIONS, *supra* note 16, at 4 (Conditions for Repeated Annual Disposal).

<sup>172</sup> These provisions parallel the Maine regulations. MAINE DEP'T OF ENVIRONMENTAL PROTECTION, REGULATIONS, *supra* note 16, at 3-4.

<sup>173</sup> *Id.*

(1) No piling is permitted on soils unsuited for such use, as listed in Table I.

(2) No piling of such waste may be left for more than one year. Waste from an existing pile must be used or disposed of by another approved method after a one-year period.

(3) No piling is permitted within 300 feet of any watercourse or within 500 yards of any dwelling occupied by any person other than such person as is responsible for such piling.<sup>174</sup>

(4) The site of such piling may not be on or located within 50 feet of any downhill slope exceeding 8%.

(5) No such site may be used for two consecutive years, and no such site may be maintained so as to permit odor, rodents, or flies to create a health hazard or nuisance.

(6) No site may be located in natural drainage ways, gullies, or ravines, or in any other location likely to permit pollution of any watercourse.

c. *Burying of Animal and Poultry Wastes or Sludge.* Burying of animal and poultry wastes or sludge is an approved disposal method subject to the conditions and limitations set forth herein:

(1) Burying sites must be located on soils suitable for such disposal as listed in Table I. No burial shall be permitted without written authorization of the department based upon a current soil and geological analysis that such disposal will not contaminate ground water.

(2) No site may be located within 500 feet of any watercourse, or at any other location likely to cause pollution of surface or ground water.

(3) No site may be located on or within 75 feet of any downhill slope exceeding 8%.

(4) Drainage channels must be constructed to divert all surface waters away from the site.

(5) Burying trenches may not exceed four feet in depth, nor may the bottom of such trenches be less than four feet above the water table or bedrock.

(6) Waste and clean soil must be alternated in six inch layers within any trench, with at least ten inches of soil cover as the top layer in the trench.

(7) No trench site may be used more than once, nor may any two such sites be located on less than two contiguous acres more frequently than once in three years. Total content from all previous applications may not exceed 5,000 pounds of nitrogen or 1,500 pounds of phosphorus per acre.

d. *Composting of Animal and Poultry Wastes.* Composting is an approved method of use and disposal subject to the conditions and limitations set forth herein:

(1) Composting is permitted only on soils shown to be suitable for such use in Table I. No composting shall be permitted without written

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<sup>174</sup> This provision is designed to prevent nuisance associated with odor, flies, and rodents, where it affects persons other than the farmer or his household. The minimum distance technique is adopted from existing state watershed regulations. See note 98 *supra*.

authorization of the department based upon a current soil and geological analysis that such composting will not contaminate ground waters.

(2) No composting site may be located within 300 feet of any watercourse, or at any other site likely to cause contamination of surface or ground water.

(3) No such site may be located on or within 50 feet of any downhill slope exceeding 8%.

(4) Drainage channels must be constructed to divert all surface water away from the site.

(5) Composting trenches may not exceed two feet in depth, nor may the bottom of such trenches be less than four feet above the water table or bedrock.

(6) The ratio of soil to waste in such trenches shall be approximately one to one, based on volume.

(7) Composting shall be accomplished by curbing soil from a trench up to two feet in depth, filling such trench with waste or sludge, then mixing in an equal volume of soil. Trenching and curbing must conform to land contour.

(8) Runoff from the composting area must be contained by diking or in accordance with regulations governing such discharge.

(9) Compost material must be removed and utilized within one year.

(10) The same soil area may not be used for compost sites more often than every other year.

e. *Oxidation Ponds, Aerated Lagoons, and Oxidation Ditches.* The use of oxidation ponds, aerated lagoons, and oxidation ditches is an approved method of use and disposal subject to the conditions and limitations governing such methods and their discharges as are set forth herein or in other rules and regulations of the department relating to point discharges:

(1) Oxidation ponds, lagoons, or oxidation ditches shall be located only on soils suitable for such use, as listed in Table I. No such operations shall be permitted without a construction and operating permit from the department, or without a discharge permit where required by Titles 7 and 8 of Article 17 of the Environmental Conservation Law and the regulations pertaining thereto.

(2) No such facility shall be located within 300 feet of any watercourse, nor within 500 yards of any dwelling, nor within 500 feet of any public road.

(3) Oxidation ponds shall have a maximum loading of 30 pounds of BOD<sub>5</sub> per acre of surface area per day, and a minimum depth of three feet. The shape of such pond must be uniform and essentially circular or rectangular, with no areas where material may accumulate. Such ponds must have a minimum three-foot freeboard above the maximum water line.<sup>175</sup>

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<sup>175</sup> These provisions are taken from recommendations by Ramond C. Loehr. (*Liquid Waste Treatment: Oxidation Ponds and Aerated Lagoons* and *Liquid Waste Treatment: the Oxidation Ditch*, in 1971 WASTE MANAGEMENT REPORT 63-71, 72-78). Professor Loehr's recommenda-

(4) Aerated lagoons shall have adequate equipment to maintain a minimum velocity of .5 feet per second throughout the unit.<sup>176</sup>

(5) Oxidation ditches shall have adequate equipment to maintain a minimum velocity of 1.5 feet per second throughout the unit, with rotor immersion of at least one-third the depth of liquid in the ditch. Such ditches shall be constructed with depths of between 15 and 30 inches.<sup>177</sup>

(6) All such facilities shall be so constructed and maintained as to prevent ground and surface water pollution, health hazards, odors, flies, or other nuisances. All vegetation within 20 feet of such facilities shall be kept closely cut at all times to control erosion and mosquito breeding.

(7) All liquid discharges from such facilities must meet the standards, conditions, and regulations of the State Pollution Discharge Elimination System.

(8) Sludge and solids from such facilities must be used or disposed of in an approved manner as set forth elsewhere in this regulation.

f. *Irrigation or Liquid Injection.* Irrigation or liquid injection of liquid animal and poultry wastes, slurry, or lagoon, oxidation pond, or oxidation ditch effluent is an approved disposal method subject to the conditions and limitations set forth herein:

(1) Irrigation or liquid injection shall be permitted only on soils shown to be suitable for such use in Table I, and only in the maximum amounts indicated therein.

(2) No such disposal shall be permitted within 100 feet of any watercourse, or in any manner or place likely to contaminate surface or ground water.

(3) No such disposal shall be permitted when the ground is saturated or nearly saturated, or when the ground is frozen or covered with snow.

(4) Injections shall be at sufficient depth to prevent runoff.

SECTION 400.7: *Soil Permeability Factors.* Approved disposal techniques and application rates shall be limited in accordance with soil permeability as indicated in Table 1 below.<sup>178</sup> The department shall provide, or make arrangements with appropriate state agencies or educational and scientific institutions to provide to any person at nominal cost, upon request, an

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tions are not necessarily exhaustive. Additional technical requirements may be necessary or desirable.

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> Table I, like the tables set out in Appendix C (*see note 158 supra*), is taken directly from the Maine regulations. MAINE DEP'T OF ENVIRONMENTAL PROTECTION, REGULATIONS, *supra* note 16, at 11-21. The soil characteristics of the entire state of Maine have been surveyed and incorporated into a series of tables. Table 1 is a sample only, and is not intended for use in New York or in conjunction with this regulation. Production of such tables is beyond the scope of this Note, as it necessitates a complete inventory of state soil types. Collection of this information and publication of applicable maximums should be left to the state Environmental Conservation Department. However, such tables are essential to the scheme of these regulations. Soil type and permeability are critical factors in the amount of seepage, leaching, erosion, runoff, and denitrification likely to occur in any given location. Coote, *supra* note 13, at 32. The Maine approach has been adopted as the most readable of available attempts to meet these needs.

analysis of soil type and permeability on the land of such person where, in the determination of the department, such analysis would foster compliance with these regulations.

**SECTION 400.8: Control of Fertilizers.**

a. *Labeling.* No commercial fertilizer shall be bought, sold, manufactured, applied, or used in this state unless packaged with an approved label thereon or instructions attached thereto which:

(1) plainly state the nitrogen and phosphorus content therein in pounds per amount of fertilizer applied, and in equivalent amounts of dairy cow manure.

(2) plainly state the recommended amounts to be applied to any crops for which the use of such fertilizer is intended, in view of the actual uptake of nitrogen and phosphorus by such crops.

(3) plainly prescribe the proper time and method of application for such crops which will minimize environmental pollution.

b. *Use and Application.* Use and application of fertilizer shall be permitted only upon the terms and conditions set forth herein, except when a written variance has been obtained from the department upon sufficient justification.

(1) No person shall use or apply fertilizer except in accordance with the approved labeling or instructions provided therewith.

(2) No amounts of fertilizer may be used or applied when, in combination with all other applications of animal and poultry wastes or other fertilizers, such amounts will cause the maximum application rates, as listed in Sections 400.4(b), 400.5, or 400.7, to be exceeded.

(3) No fertilizer shall be used or applied within 50 feet of any watercourse, or in any location likely to cause pollution of any watercourse or of any surface or ground water.

(4) No fertilizer may be used or applied to frozen or snow-covered ground.

(5) No fertilizer may be used or applied on any slope exceeding 20%.

**SECTION 400.9: Variances.** Variances permitted by Sections 400.4, 400.6, and 400.8 herein may be issued at the discretion of the department, but only in cases of hardship or special circumstances, and only when supported by appropriate scientific and technical evidence. In no case shall any such variance be permitted which contravenes the policies set forth in Sections 17-0302 and 17-0303 of the Environmental Conservation Law or in Section 400.3 herein.

TABLE I  
SAMPLE SOIL PERMEABILITY TABLES<sup>179</sup>

	SPREADING				IRRIGA- TION	PIL- ING	BURY- ING	COM- POST- ING	LEACH- ING BED
	Cattle, Horse Manure, Sludge		Poultry, Sheep, Hog Manure						
	Lbs. Nitro- gen	Tons Man- ure	Lbs. Nitro- gen	Tons Man- ure					
Dut and fill land	0	0	0	0	0	No	No	No	No
Jaigle silt loam	300	30	300	15	300	No	No	No	No
Jaigle stony silt loam	300	30	300	15	300	No	No	No	No
Jaigle very stony silt loam	300	30	300	15	300	No	No	No	No
Deerfield sandy loam	100	10	100	5	100	No	No	No	No
Deerfield loamy sand	100	10	100	5	100	No	No	No	No
Dixmont silt loam	300	30	300	15	300	No	No	No	No
Dixmont very stony silt loam	300	30	300	15	300	No	No	No	No
Duane sandy loam	100	10	100	5	100	No	No	No	No
Dune land	0	0	0	0	0	No	No	No	No
Dune land and Coastal Beach	0	0	0	0	0	No	No	No	No
Easton-Washburn silt loam	0	0	0	0	0	No	No	No	No
Easton-Washburn stony silt loam	0	0	0	0	0	No	No	No	No
Elmwood fine sandy loam	300	30	300	15	300	No	No	No	No
Fredon-Halsey silt loam	0	0	0	0	0	No	No	No	No
Fresh Water Marsh	0	0	0	0	0	No	No	No	No
Gloucester sandy loam	200	20	200	10	200	S	No	No	No
Gloucester very stony sandy loam	200	20	200	10	200	S	No	No	No
Gloucester extremely stony sandy loam	200	20	200	10	200	S	No	No	No
Gravel Pits	0	0	0	0	0	No	No	No	No
Hardland silt loam	400	60	400	30	400	S	S	S	S

S = suitable

<sup>179</sup> This chart is intended only as an example to show the type of information which must be compiled to accompany the proposed New York regulations. See note 178 *supra*.

## APPENDIX C

## SAMPLE POLLUTION CONTROL FIGURES

Primary Criteria for Requiring the Registration of Livestock  
and Poultry Producing Firms, 1971

State	Type of livestock and/or poultry producing activity	Minimum head of animals in con- finement at one time	Applicability to new and existing operations
Minnesota	Livestock feedlots, poultry lots, and other animal lots	—	All new lots and exist- ing lots upon request
Indiana	Confined feeding of cattle, sheep, swine, and fowl	300	All firms meeting other criteria
Iowa	Uncovered beef feeding operations	1,000	All new firms and exist- ing firms upon request
Kansas	Confined feeding of cattle, swine, sheep, and horses	300	All firms meeting other criteria
Nebraska	Beef cows, feeder and fat cattle, dairy cattle, swine, sheep, turkeys, geese, chickens, and ducks held in confinement	300	All firms meeting other criteria
N. Dakota		200	All firms meeting other criteria
Oklahoma	Operations feeding for slaughter cattle, swine, sheep, and horses	250	All firms meeting other criteria
Texas	Swine and cattle being fed to slaughter	—	Any firm discharging waste into or adjacent to state waters
Arizona	Beef feedlots	500	All firms meeting other criteria

Primary Criteria for Requiring Registration or Permits  
 Provided by General State Water Quality Statutes

State	Type of activity required to register or obtain permit	Size requirements	Applicability to new and existing operations
Maine	Livestock production operations	Those occupying a land area in excess of 20 acres or structure(s) on one parcel in excess of 60,000 square feet	All new firms meeting other criteria
Massachusetts	Livestock producers planning a discharge of waste or effluent from an abatement facility	—	All new firms
New Jersey	Livestock producers planning a discharge of waste or effluent from a disposal system	—	All new firms meeting other criteria
Pennsylvania	Livestock firms using waste treatment facilities and lagoons	[Survey data available did not indicate what provisions were applicable in Pennsylvania.]	
Rhode Island	Livestock producers operating a waste discharge point	—	All new firms meeting other criteria and existing firms implementing an increase in the volume or strength of discharge
Florida	Any livestock producing or animal waste abatement installation considered a potential source of water pollution	All firms with waste systems handling greater than 500 lbs. of BODs; others if there is an unusual pollution potential	All firms meeting other criteria