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WATER POLLUTION CONTROL IN VERMONT: A SYSTEM OF EFFLUENT CHARGES

I. INTRODUCTION

In the final hours of a three month session, Vermont's legislature adopted a water pollution control law which imposes fees on polluters.¹ Control of water pollution has been a popular issue in Vermont—its first comprehensive laws on the subject were passed in 1949²—and this new legislation is designed to be a major step toward upgrading much of that state's water resources.³

Increasing industrial and municipal water use has resulted in such widespread pollution that the traditional private law of riparian rights provides an inadequate remedy to the problem of unclean water.⁴ Consequently, state intervention has become essential to the maintenance of high water quality.⁵ There are several approaches a state may take to control water quality. The conventional method is direct state regulation of stream standards, enforced through effluent standards.⁶ The state sets quality standards for specific bodies of water and then regulates or prohibits the discharge of waste effluents in order to maintain the standards. A second method of state control employs the same water quality standards, but does not regulate or prohibit waste discharge. Instead of direct control, a fee is assessed, calculated so that it will be an incentive to the polluter to reduce its discharge of waste to a point where the water quality will rise to the desired level. Each polluter is charged according to the amount of effluent he discharges into the water. This is a system of stream standards enforced by effluent charges.⁷ A third system, also based on effluent charges,⁸ does not set a specific standard for water quality; rather, effluent charges are assessed solely on the basis of the damage the discharged waste inflicts upon subsequent

¹ N.Y. Times, Apr. 6, 1970, §1, at 31, col. 3.

² V.S. 1949, No. 148, §16.

³ VT. STAT. ANN. tit. 10, §§901-920 (1949).

⁴ See generally A. KNEESE & B. BOWER, MANAGING WATER QUALITY: ECONOMICS, TECHNOLOGY, INSTITUTIONS 84-89 (1968).

⁵ *Id.* at 89-96.

⁶ *Id.* at 131-181. The author suggests that there has been a debate about stream standards vs. effluent standards but that the two ideas really are complementary.

⁷ *Id.*

⁸ *Id.* at 97-130.

users. The rationale underlying this approach is that charging the producer for the damage he causes will result in the most economically efficient allocation of resources.⁹ This third approach, however, is made impossible under federal law which requires either the states or the federal government to establish stream standards for all interstate waters.¹⁰

II. THE VERMONT BILL

A. Vermont's Approach to Solution

The new Vermont legislation seeks to control pollution through a confusing hybrid of all the above systems of water management. The provisions of the new bill provide for the issuance of temporary pollution permits which will allow polluters who cannot immediately satisfy the terms of the statute additional time to comply. However under such permits polluters will be required to pay an effluent charge based upon the amount of waste they put into the water.¹² Notwithstanding this new effluent charge provision, the essence of the Vermont approach remains a system of stream classifications enforced by permits directly regulating the amount of waste discharge.¹³

Vermont's problem is not overwhelming—it certainly lacks the dramatic severity of the pollution in the Hudson River area.¹⁴ Vermont's principal sources of effluents are from the by-products of the milk and cheese processing plants, the refuse from paper mills, and granite dust from the washing of granite from the granite quarries.¹⁵ The sources of pollution are few enough that the government agency in charge of administering the new law, the Department of Water Resources, believes it will be fairly easy to oversee the polluters.¹⁶ Moreover, experience gained by the department while administering the old law may enable it to mount a more coherent attack against pollution than is apparent on the face of the recent enactment. The purpose of this note is to

⁹ *Id.*

¹⁰ If the state fails to establish stream standards, the federal government will. 33 U.S.C. § 1160 (1966).

¹¹ VT. STAT. ANN. tit. 10, §912a (1970).

¹² *Id.* §§902, 911a.

¹³ *Id.* §912a.

¹⁴ Drahos, *A Clean-up Folk Festival*, 24 CONSERVATIONIST, Oct.-Nov., 1969, at 31; Atwater, *Hope for the Hudson*, 23 CONSERVATIONIST, Jun.-Jul., 1969, at 15; Seegar & Goodman, *To Save the Dying Hudson*, LOOK, Aug. 26, 1969, at 62.

¹⁵ This and a great deal of other information was obtained in interviews with officials of the Vermont Department of Water Resources [Hereinafter cited as Department of Water Resources].

¹⁶ *Id.*

describe the important provisions of the new statute and point out its relative strengths and weaknesses.

B. *Water Classification*

Stream classifications have been the pattern of Vermont water legislation since the enactment of the 1949 water pollution law. That law established four classes of water quality which have been incorporated into the new law and now range from Class A, the highest, to Class D, the lowest. Class A consists essentially of drinking water;¹⁷ Class B, also of high quality, is suitable for swimming and recreation;¹⁸ Class C, a lower grade, is still suitable for boating and wild life;¹⁹ and Class D is basically a residuary category for the dirtiest, most polluted water.²⁰ The 1949 law also provided that all lakes over twenty acres in size were to be Class B, while all the other water fell into Classes C and D as determined by the Water Conservation Board.²¹ The Water Conservation Board was the precursor of the present Water Resources Board, which directs the activities of the Department of Water Resources. In 1964 the law was strengthened so that all waters not of Class A or B quality were to be of Class C quality at the very least.²² The 1970 Act continued the trend to upgrade water quality by requiring all water not of Class A quality to be of Class B quality unless classified otherwise by July 1, 1971.²³ This provision represents one of the most dramatic changes in the new law. If primarily all Vermont waters are to be of Class A or B quality, then by definition, the state's waters are required to be virtually free of pollutants.

C. *Enforcement of Classifications*

To enforce its water classifications, Vermont has adopted a system of *effluent standards* which allows the Department of Water Resources to prohibit discharges that lower the quality of receiving waters below the standard desired. Anyone wishing to discharge even pure water into rivers and streams must file with the Department of Water Resources a written report indicating an

¹⁷ VT. STAT. ANN. tit. 10, ch. 33, subch. 1, §902 (1970).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ [1949] VT. SESS. LAWS, No. 148, §5. The Water Conservation Board was the forerunner of the present Water Resources Board which heads the Department of Water Resources.

²² [1964] VT. SESS. LAWS, No. 37, §903.

²³ VT. STAT. ANN. tit. 10, §903 (1970).

intent to discharge and describing the nature of the effluent.²⁴ An application for a discharge permit²⁵ will be granted by the department only upon a finding "that the proposed discharge will not reduce the quality of the receiving waters below the classification established for them."²⁶ The permit specifies "the manner, nature, volume, and frequency of the discharge permitted."²⁷

At any given point water quality is a function of variables such as volume of flow, rate of flow, water temperature, and types of waste already in the water. As the variables change, the effect of a discharge will also change. For example, the flow in a stream during a summer dry spell might be so low that any amount of waste put into the water would result in severe pollution. However, when rivers are swollen in the spring large amounts of waste can be discharged without significantly affecting water quality. Likewise the rate and volume of flow of a stream can vary with the amount of water and waste discharged by upstream users of the water. Consequently, to maintain water quality standards, effective regulation of discharges requires the ability to make seasonal, daily, or even hourly adjustments in the amount of effluents permitted in order to respond to any of the changing stream conditions. It is currently possible to make such predictions accurately.²⁸ For example, it can be estimated that the flow of water in a stream will equal or exceed a certain minimum rate eighty percent of the time in a given year. Thus, a permit based on that minimum rate can be expected to maintain stream standards for that much of the year. This means under a minimum rate permit, the permissible discharge will cause the water quality to fall below the established standard roughly twenty percent of the time. Consequently, unless the department can include in the permit a reservation of power to adjust the permissible discharge in accordance with deteriorating stream conditions, no discharge permit can be guaranteed to maintain a given water standard.

Conversely, when the flow exceeds the minimum rate, the fixed permit prohibits the polluters from taking advantage of the increased assimilative capacity of the stream. Thus, a discharge permit that fixes the nature, volume, and frequency of the discharge would be disadvantageous to the polluter as well as to the department. The Vermont statute appears to create an inflexible

²⁴ *Id.* §910a.

²⁵ *Id.* §911a.

²⁶ *Id.* §911a(c).

²⁷ *Id.* §911a(d)(1).

²⁸ A. KNEESE, *THE ECONOMICS OF REGIONAL WATER QUALITY MANAGEMENT* 129-140 (1964).

permit by requiring it to specify the manner, nature, volume and frequency of the discharge. However, under the Vermont statute, the Department has the power to add to the permit "such additional conditions, requirements, and restrictions as the department deems necessary to preserve and protect the quality of the receiving waters."²⁹ This provision could be interpreted to allow the Department of Water Resources to issue a permit expressing the discharge permitted as a function of the variables important to water quality. In addition the Department of Water Resources has the power to require a permit holder to properly operate and maintain "any pollution abatement facility."³⁰ This broad power, if combined with the ability to write a flexible discharge permit, would give the department a comprehensive power over the permit holder. With such tools the department would be well equipped to undertake the work of maintaining stream quality.

Since the discharge under a permit cannot reduce the quality of recurring waters below an established level, the definition of "receiving waters" is important. If interpreted as the waters at the geographical point where the discharge enters the stream, then determining the extent that a given discharge pollutes the river involves a calculation of the quality of the water immediately before and after the discharge. Even if flexible discharge permits are included in the Vermont scheme, interpreting "receiving waters" as the point at which a discharge is released into the water inevitably leads to inequitable results. For instance: factories X, Y, and Z, close together along a stream are all dumping amounts of biodegradable wastes into a stream categorized as Class C.³¹ This results in an "oxygen sag"³² immediately downstream from these three plants. The discharge of plants X and Y is not enough to reduce the standard of the water below Class C; however, when combined with plant Z's discharge further downstream, their total discharge reduces the standard to Class D. The equi-

²⁹ VT. STAT. ANN. tit. 10, §911a (d)(3) (1970).

³⁰ *Id.* §911a (d)(2).

³¹ Degradable and non-degradable waste is one of the principal distinctions between types of wastes. Basically degradable wastes, as Kneese says, "are reduced in weight by the biological, physical, and chemical processes which occur in natural waters." KNEESE & BOWER, *supra* note 4, at 14. Bio-degradable wastes are those whose weight is reduced by biological processes and is a major source of water pollution. Non-degradable wastes, on the other hand, "are usually diluted and may be changed in form, but they are not appreciably reduced in weight in the receiving water." *Id.* at 14. For a general discussion of this see KNEESE & BOWER, *supra* note 4, at 13-30.

³² "Oxygen sag" results when wastes are decomposed by bacteria in the water, consuming large amounts of oxygen and thereby lessening oxygen content of the river in the area downstream from the discharge. This oxygen sag is one of the most common kinds of water pollution, but if the discharge is not too large the wastes are absorbed by the stream, and the oxygen level rises again further downstream.

table solution would be to require all three plants to reduce their discharge proportionately to a level where Class C standards can be maintained. However, if we interpret "receiving waters" as the point where the discharge flows into the water, plants X and Y could argue that since the standard was not lowered at the place where their waste was deposited, they are not responsible for lowering the water's quality. They can contend that plant Z is responsible for the pollution which lowers the standard. In fact, all three factories have contributed to the pollution of the river; only plant Z, however, contributed that marginal amount of pollution which reduced the quality below the minimum established standards.

In the case of non-degradable wastes,³³ the problem becomes even more extreme. Chemical effluents from factory L could be carried a hundred miles downstream before it combined with effluents from factory M in a way that lowered water quality below the desired standard. To require factory M to bear the full cost of water treatment or reduced production is unfair, when in fact both factories are responsible for lowering the water quality.

To reach an equitable result, "receiving waters" should be interpreted to mean the water along the entire length of the stream. Thus the effect of any discharge on the water would have to be calculated not only in terms of the discharges already in the water, but also in terms of any source of pollution the discharge will encounter in its movement downstream. There is some authority in Vermont for interpreting "receiving waters" as an entire stream system. The 1949 law³⁴ stated that the Water Conservation Board could take action "against any person who permits waste of such kind or quantity to enter such stream as by itself or in combination with wastes of other sources reduces the water below the classification set . . ." ³⁵ (emphasis added). The phrase "other source," was interpreted by the department to mean either an upstream or downstream sources.³⁶ Although this section has been repealed by the extensive 1970 revision of the statute, it would remain consistent with that prior approach to define "receiving waters" as the waters of the entire stream basin.

As an adjunct to the broad discretionary power the Water Resources Board possesses regarding the classification of water and the issuance of discharge permits, the Board also may sue in chancery courts for a broad range of remedies, including the

³³ See *supra* note 31.

³⁴ [1949] VT. SESS. LAWS, No. 148, §16.

³⁵ *Id.* §909.

³⁶ Obtained in interview with an official of the Department of Water Resources.

assessment of compensatory and punitive fines.³⁷ Refusal to obey an order or to comply with the terms of a permit can result in fines up to \$10,000 per day and imprisonment up to five years.³⁸

The solution to water pollution problems, however, does not lie in governmental decrees and draconian punishments. Water quality is valuable, but so too are the jobs and products that are created by polluting industries. While the goal of returning streams, lakes, and rivers to the purity of their natural state is an attractive one, the character of our economy is such that industrial interests must be considered when formulating pollution control programs. Recognizing this need, Vermont has introduced two methods of balancing these two conflicting interests.

D. Balancing Interests Under Vermont's Law

The law provides that the Water Resources Board will place bodies of water in classes other than A or B before July 1, 1971. Only those waters still unclassified as of next July will be put into Class B.³⁹ Persons or municipalities who feel "they suffer injustice or inequity as a result of the classification of any waters" may petition the Water Resources Board to hold hearings, or the Board may hold them on its own motion.⁴⁰ Such hearings are now being held. In this work the Board is assisted by a Classification Advisory Council which consists of certain inhabitants of a drainage area, including at least one representative of industry.⁴¹ If the Board finds "the established classification is contrary to the public interest it may, by order, reclassify . . . such waters to a higher or lower classification."⁴²

The many factors to be considered by the Board in determining what is in the "public interest" are indicated in the statute.⁴³ These considerations suggest that the classification procedure should be used in terms of an overall plan for water quality control. If thus applied, the classification procedure could be used to lay the foundation for an entire drainage area system. However, this section could also be the weak point of the entire statute. If this power is used to favor industrial and municipal pressure groups, and if classifications to Class C and D occur frequently, Vermont's new law will have very little effect on water quality.

³⁷ V.T. STAT. ANN. tit. 10, §917a (1970).

³⁸ *Id.* §918.

³⁹ *Id.* §903(b).

⁴⁰ *Id.* §903(c).

⁴¹ *Id.* §906.

⁴² *Id.* §903(c).

⁴³ *Id.* §903(e).

Thus far, the department seems to be using the lower classifications sparingly. No waters are being denominated as Class D. As of September 1970, twenty-five of a total thirty-six drainage basins had been classified, and the department was estimating that less than ten percent of the waters of the state would be designated as Class C when the law goes into effect in July 1971.⁴⁴ Furthermore, these Class C zones will primarily consist of one or two mile stretches of water immediately downstream from a municipal or large industrial polluter. The discharges are eventually to be limited to amounts of biodegradable waste small enough to be absorbed by the stream with the Class C zone.⁴⁵

The Water Resources Department may utilize another device enumerated in the Vermont law to balance the need for clean water against the economic encumbrance control places upon the polluter: the Department may grant temporary pollution permits, which give the polluter additional time to comply with the new water quality standards.⁴⁶ If a polluter cannot qualify for a discharge permit because his discharge lowers the quality of water from one class to another, he must apply for a temporary pollution permit. If the applicant meets several specified conditions, the Department may issue him such permit. These prerequisites are: (1) he does not qualify for a discharge permit;⁴⁷ (2) he is designing, constructing, or researching waste treatment facilities;⁴⁸ (3) he needs time to continue polluting beyond July 1, 1971;⁴⁹ and (4) there are no reasonable alternative methods of waste disposal other than discharging it into a stream.⁵⁰ In addition, he must also show that extreme hardship will result if a pollution permit is not issued, that the public benefits from his use of the water, and that his discharge will not be unreasonably destructive of water quality.⁵¹

The breadth of interpretation possible under any one of these conditions places the issuance of a permit almost totally within the department's discretion. However, departmental decisions are appealable to the Board and to the chancery court.⁵²

The temporary permit resembles the discharge permit to the

⁴⁴ Obtained in interview with an official of the Department of Water Resources.

⁴⁵ *Id.*

⁴⁶ VT. STAT. ANN. tit. 10, §912a (1970).

⁴⁷ *Id.* §912a(c)(1).

⁴⁸ *Id.* §912a(c)(2).

⁴⁹ *Id.* §912a(c)(3).

⁵⁰ *Id.* §912a(c)(4).

⁵¹ *Id.* §912a(c)(4)-(7).

⁵² *Id.* §§914a, 915. In an interview with an official of the Department of Water Resources it was disclosed that the Department expects to be issuing permits to most of the large number of applicants who have applied.

extent that it specifies the discharge permitted, the construction of abatement facilities, and the reservation by the department of the power to attach other conditions as it sees fit. Thus, the temporary permit may suffer from the same inflexibility as the discharge permit. Unlike the discharge permit, however, the holder of a temporary pollution permit will be required to pay a fee based on the amount of effluent he discharges. In effect, then, the statute creates a system of effluent charges which are levied in connection with the temporary pollution permit.

The effluent charge is the result of several ideas, one of which is that use of water should be paid for like most other commodities. The Vermont law recognizes this when it says, "the authorized discharge . . . represents an expropriation of a valuable public natural resource. . . ."⁵³ A second related rationale for the effluent charge is that the cost of production and the price of goods should accurately reflect their actual cost to society.⁵⁴ For example, assume that pollution of water is a by-product of a certain paper mill process. This pollution causes damage downstream to other users of the water (*i.e.*, a fishing business). However, since pollution of the water costs nothing, the price of paper does not accurately reflect its true production cost to society. If a paper manufacturer is charged to the extent his pollution damages others, on the other hand, he will have to raise his prices to meet adequately the cost of the damage. This represents reallocation of the cost of the resource back to the manufacturer who originally used the water at no cost. A parity between cost to society and cost to the manufacturer is important to a free market economy if society is going to make correct decisions on the optimum use of natural resources through the market place.⁵⁵ Theoretically, if the price of paper increases after effluent charges are imposed, less paper will be sold, less paper will be manufactured, and less pollution will then be discharged into the river. Recognizing this theory as the basis for effluent charges, the Vermont statute directs the Board in setting the charge, "to approximate in economic terms the damage done to other users of the waters, both private users and the general public."⁵⁶

Effluent charges should be set so that they operate as a direct incentive to the polluter to reduce its waste discharges. Assuming profit maximization is the goal of the businessman, he will make

⁵³ VT. STAT. ANN. tit. 10, §912a(e)(1)(1970).

⁵⁴ A. KNEESE & B. BOWER, *supra* note 4, at 75-78.

⁵⁵ *Id.*

⁵⁶ VT. STAT. ANN. tit. 10 §912a(e)(2)(1970).

changes in production necessary to reduce waste or treat wastes in order to minimize his effluent charges.⁵⁷

While the incentive motive is the principle purpose for the effluent charges in the Vermont statute,⁵⁸ an additional advantage of the charges is that they produce revenue which can be used to improve water quality.⁵⁹ For instance, a business may calculate that it is cheaper to pay the charges than to build extensive and expensive abatement facilities. Several firms along a river basin may reach a similar decision. Though it is in fact cheaper for all the firms to pay the charges on an individual basis, the revenue gained from all these firms together might be sufficient to operate a single waste treatment facility that would treat all the waste material at some point downstream. Despite the fact that there would be areas of a stream that were polluted, large areas could be kept clean and usable. Finally, the revenues could make the department self-sufficient and enable it to wage a coherent and comprehensive attack on water pollution.

E. Criticism of Vermont's Temporary Pollution Permits

Effluent charges can be used in two basic ways. If the goal is primarily the reduction of waste, then the inhibiting effect of the charge on pollution may be emphasized by setting the charge at a level that is designed to cause substantial waste reduction.⁶⁰ On the other hand, if the goal is an equitable and efficient allocation of resources, then the rate should be set to charge the user an amount equivalent to the cost of the discharge to the society as a whole.⁶¹ The same charge will, of course, operate both to reduce pollution and reallocate cost. However, depending on which of these uses is considered more important, the way in which the charge is calculated will be quite different.

⁵⁷ As a matter of theory he will reduce wastes or treat wastes until he reaches the point at which it becomes more expensive to treat his waste than it is to pay the charge. In some industries it may be less expensive to pay the charge rather than to reduce pollution at all, and in another industry it might be cheaper to eliminate the pollution altogether than to pay a charge. This is the equitable feature of the effluent charge. In the example in the text, *supra*, imagine that factories X, Y, and Z are producing equivalent amounts of waste. Plant X, for instance, can reduce its waste by ninety percent before it becomes cheaper to pay the charge. Plant Y on the other hand may reach that point after reducing its waste by fifty percent, and Plant Z after only eliminating ten percent. Although the reduction in waste is not the same, the cost of paying the charge added to the cost of reducing waste will be roughly equivalent for all three plants.

⁵⁸ VT. STAT. ANN. tit. 10, §912a(e)(1)(1970).

⁵⁹ The Vermont statute in §912a(e)(1) only partially recognizes this feature of the effluent charge. It states that "the charges are not imposed for revenue purposes . . . (they) shall be used solely for purposes of water quality management and pollution control." The statute's failure to authorize the department to construct abatement facilities restricts their use for controlling water pollution.

⁶⁰ A. KNEESE & B. BOWER, *supra* note 4, at 135-139.

⁶¹ *Id.* at 75-84.

The primary purpose of the Vermont statute is to provide polluters with the incentive to reduce their waste.⁶² Logically, then, the effluent charge should be designed to complement Vermont's stream standards system. Effluent charges can be used in place of direct regulation to achieve specific levels of water quality in two ways. First the charge may be set high enough to cause substantial reduction in the amount of effluents discharged into a stream. Second, the revenue from the charge may be used by the government to finance treatment of wastes.⁶³ If this goal is emphasized, the resulting cost of water may not equal the cost of the discharge to society as a whole, but at least limited reallocation of costs to the user would nonetheless be an important secondary effect of such a charge.⁶⁴ Studies of the Delaware River Basin have shown that effluent charges used in this way can be an effective and inexpensive method of enforcing stream standards.⁶⁵

To complement its existing stream standards system, Vermont's effluent charge should be set to achieve the desired standard by calculating how much a given charge will reduce pollution and raise revenue. Unfortunately, Vermont's statute does not calculate charges in this fashion.⁶⁶ Instead it specifies that the charge be calculated to approximate damages to downstream users. This represents an attempt to equate the cost to the upstream user with the damages to downstream user. Such an approach best serves a system which has as its chief goal the efficient allocation of resources through reallocation of cost—not a system whose goal is high water quality standards.⁶⁷ The inconsistency within the language of the effluent charge section, which, on the one hand, says Vermont is most concerned with giving an incentive to polluters but, on the other, directs the charge be set with the goal of reallocation of cost in mind, clouds the entire water management picture.

Although charges primarily designed to reallocate costs could effectively serve to reduce pollution, such a result would be largely accidental. Vermont intends to issue a large number of temporary permits which will impose an effluent charge.⁶⁸ If the charge is computed as directed by the statute, Vermont will in large measure be operating an effluent charge system with goals inconsistent with those found in the basic stream standards ap-

⁶² VT. STAT. ANN. tit. 10, §912a(e)(1)(1970).

⁶³ A. KNEESE & B. BOWER, *supra* note 4, at 135-138, 173-179.

⁶⁴ *Id.* at 159.

⁶⁵ *Id.* at 158-164.

⁶⁶ VT. STAT. ANN. tit. 10, §912a(b)(2)(1970).

⁶⁷ A. KNEESE & B. BOWER, *supra* note 4, at 134-139.

⁶⁸ Obtained in an interview with an official of the Department of Water Resources.

proach. This may work to improve Vermont's water quality, but it in effect nullifies a large part of the statute.

Another troubling characteristic of the statute is that the effluent charge is viewed as only a temporary, interim solution to the problem of improving water quality. Once stream standards reach A and B levels, the statute suggests that Vermont will again rely upon effluent standards, not effluent charges, to maintain high water quality.⁶⁹ If the effluent charges were to be employed permanently, it would be unnecessary to ever lower the stream classification for the benefit of pollution.⁷⁰ Since the effluent charge system allows discharges if the polluter pays as he pollutes, there is no need to permit cost-free pollution. Reclassification to lower standards, which allows pollution at no cost, removes the incentive for waste reduction and produces no revenue.

The abandonment of the effluent charge system for the reclassification procedure could well be the weakest point of the statute. Waters immediately downstream from most polluters in Vermont have already been reclassified as class C,⁷¹ but fortunately, this represents less than ten per cent of the waters of the entire state.⁷² If the Vermont approach were followed by a state with more significant water quality control problems, however, the percentage of waters in class C and class D would be much higher. On the other hand, a fully utilized system of effluent charges could allow all streams to remain in class B by creating an economic incentive for the manufacturer to cease, or at least significantly reduce, his water pollution.

III. CONCLUSION

The Vermont statute attempts to combine two different systems of water management: the 1949 provisions for stream and effluent standards, and the 1970 provisions for effluent charges. How well this dual system will function is presently uncertain. Nevertheless, it is clear that the new statute not only creates new problems but leaves old problems unresolved. For instance, the traditional problem of failing to define receiving waters is carried over into the 1970 law. In addition, the new statute misconstrues the goals of the effluent charge by viewing the charge in terms of

⁶⁹ VT. STAT. ANN. tit. 10, §912a(e)(1)(1970).

⁷⁰ For a discussion of the advantages of an efficient charge system, See A. KNEESE & B. BOWER, *supra* note 4, at 315-319.

⁷¹ See discussion of reclassification accompanying notes 39-42, *supra*.

⁷² Obtained in an interview with an official of the Department of Water Resources.

⁷² *Id.*

economic damage to the downstream user rather than as a means of controlling pollution to achieve the standards established under the statute.⁷³ Because of these problems, the Vermont statute falls short of serving as a model approach to water pollution control.

—*Hobart Birmingham*

⁷³ If federal law did not require a system of stream standards, then of course Vermont could write a system of effluent charges not based on stream standards. *See* note 10 *supra*.