

STATE OF VERMONT

WATER RESOURCES BOARD

Appeal of Discharge
Permit Number ID-9-0013 In re:
Snowridge, Inc. and Mountain
Wastewater, Inc.

10 V.S.A. Section 1269
Opinion, Findings of
Fact, Conclusions of Law
and Order.

This proceeding concerns Discharge Permit Number ID-9-0013 ("the Permit") issued on behalf of the Secretary of the Agency of Natural Resources by the Department of Environmental Conservation ("the Department") to Snowridge, Inc. and Mountain Wastewater, Inc. ("the Permit holders") for the indirect discharge of treated sewage effluent into Rice Brook. Condominium and Homeowners Associations at the Sugarbush resort ("the Appellants") who are served by the treatment system. have appealed the terms of the Permit.

The Parties submitted prefiled written testimony, and a hearing was held before the Board on December 8, 1988.

Because the issues in this appeal are complex, novel and important, the Board has prefaced its, findings of fact and conclusions of law with an explanatory opinion.

Background

The Permit resolved an enforcement action by the Department that began in 1984 with the discovery that treated sewage from the wastewater treatment facility serving the Sugarbush resort including the Appellants' houses and condominiums was violating water quality standards in Rice Brook. After long negotiations the Department and the Permit holder in January, 1988 entered into an "Assurance of Discontinuance and Agreement" under 10 V.S.A. Section 1272 ("the Settlement Agreement"). The Permit that is appealed in this case substantially reflects the terms of the Settlement Agreement. While the Settlement Agreement itself is not before the Board, any discussion of the Permit will seem artificial and the Permit itself will be difficult to understand unless it is borne in mind that the Permit reflects a negotiated settlement. (The Settlement Agreement and the Permit were accepted in evidence as attachments to the Department's prefiled testimony.)

The heart of the Settlement Agreement was that the Permit holders undertook to construct a 9.5 million gallon storage tank to retain some of its treated sewage effluent and release the

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excess effluent in April and May, when it was thought that the flow of water in Rice Brook would be enough to dilute the discharge and that there would be no significant alteration of the Brook's aquatic biota. (Testimony of Mr. Flanders, Transcript at 229.) These provisions of the Agreement are now conditions of the Permit; see Permit pages 1-6; they are challenged in this appeal.

The requirement for a storage tank apparently was arrived at in this way.

The starting point was the requirement that the aquatic biota of Rice Brook not be significantly altered by the indirect discharge of treated sewage. 10 V.S.A. Section 1259(e)(1) and Vermont Water Quality Standards Section 1-03(A). This requirement was added in its present form by Act 199 of the Legislative Session of 1986 effective May 17, 1986 and subsequent amendments to the Vermont Water Quality Standards effective January 8, 1987. Except for amending the water quality standards to define "no significant alteration," neither this Board nor the Secretary of the Agency of Natural Resources has yet issued regulations implementing Act 199 and in the absence of such regulations the Department has been operating under Interim Administrative Procedures, known as the "IAP," discussed below.

The IAP allows an applicant for an indirect discharge permit to choose among three methods to demonstrate that his discharge would not significantly alter the aquatic biota in the receiving waters. The method chosen in this case was based on the "Site Specific Compliance Test," a mathematical calculation to show that the proposed discharge would not cause water pollution in **excess** of "interim criteria" set out in the IAP. IAP pages 22-24. These "interim criteria" include in-stream concentration limits for combined nitrate-nitrite (referred to in this proceeding as "nitrate") and phosphorus.

(The IAP does not purport to set water quality standards, of course, and it is important to keep in mind that the "interim criteria" for nitrate and phosphate used in this demonstration are not general standards for in-stream water quality. The only water quality standard at issue in this case is the "no significant alteration of aquatic biota" standard set by Act 199 and Board regulation).

The Department testified, however, that if they had followed the "Site Specific Compliance Test" in all respects, no permit could have been issued in this case, since the calculations would have shown the IAP nitrate and phosphate criteria to be exceeded by any feasible level of discharge.

(Testimony of Mr. Flanders, Transcript at 222-224 and 235.) In order to avoid this result, and apparently to reflect the Settlement Agreement, the Department relaxed its "interim criteria." The ad hoc procedure actually chosen, which reflected the IAP only in some respects, was as follows.

The first step was to select the appropriate numerical criteria for water quality in Rice Brook. The Department selected the "interim criteria" for nitrate and phosphate in the IAP "Site Specific Compliance Test" as appropriate for Rice Brook. (Testimony of Mr. Flanders, Transcript at 221; Permit at 12.) The Department determined that the burden of demonstrating no significant alteration of the aquatic biota would be met if calculations showed **that** nitrites and nitrates in Rice Brook would be limited to 2 mg/l and total dissolved phosphates to .015 mg/l, the "interim criteria" in the IAP.

The second step was to calculate the volume of effluent that could be released without exceeding these "interim criteria."

The IAP Site-Specific Compliance test requires a single constant limit on discharges to apply at all times, based on a worst-case situation: stream flow at either the rate of the lowest seven-day average that can be expected in a ten-year period -- the "7Q10" benchmark -- or the "lowest median monthly flow," depending on the pollutant at issue. IAP Section 13-07. For nitrate and phosphate, the appropriate limits would be based on lowest median monthly stream flow. IAP Table I, page 14.

In this case, however, the Department relaxed the usual method and instead allowed the applicant to base its calculations on a "trimester" standard -- worst-case 30-day flows calculated separately for spring, summer and winter periods. This method gave the Permit holder three seasonal discharge limitations instead of the single limit usually required by the IAP. This in turn allowed the Permit holder to store excess effluents during ten months of the year, and to release the stored excess **during two** months in the spring when discharge limits were more permissive. (Testimony of Mr. Flanders; Transcript at 243-246.)

Third, the Department calculated the volume of discharge that could be permitted in each trimester. It apparently used its customary IAP method of calculating allowable flows -- a "mass balance" equation which relates the permitted discharges to existing flows and concentrations of nutrients in the receiving water -- to calculate the permissible discharge for summer and winter trimesters. (IAP Section 13-07; Testimony of MS. Jamieson, Transcript at 312-319.) The allowable discharges calculated in this way for summer and winter were much less than the volumes of treated sewage being produced in those months.

The last step, therefore, was to require a storage tank large enough to retain excess effluents from the summer and winter trimesters, to be discharged during April and May, when production of sewage was less and stream flow was much higher. Allowable discharges during April and May apparently were calculated without regard to the mass balance equation, which showed that in-stream pollution would sometimes exceed the IAP criteria during these months. (Testimony of Mr. Flanders, Transcript at 237-238; Permit at 12.)

Appellants challenge the methods of calculation at every step. They say that there is no evidence in the record to support the 2 mg/l nitrate water quality criterion taken from the IAP (the phosphate criterion is not challenged). They assert that the trimester system is too stringent during the summer and winter, and yet unnecessarily produces violations of IAP water quality criteria in the spring. Appellants claim the trimester method is arbitrary and that "monthly" discharge limits should have been calculated.

Statement of Issues

It will be helpful to state at the outset the issues presented.

- (1) Does the Permit allow violations of Vermont Water Quality Standards?
- (2) Is there adequate evidence to support the nitrate water quality criterion as used in this case?
- (3) Does the "trimester" method of calculation produce discharge limits that are unnecessarily stringent in summer and winter?

Discussion

We must decide some preliminary questions of law before reaching the ultimate issues in this case.

1. Weight To Be Given The IAP.

The Department insists that the Water Resources Board lacks jurisdiction in this matter. The Department's theory is that the Permit is based on the IAP, that Appellants have challenged the IAP and that the Water Resources Board does not have

jurisdiction to hear such a challenge. Agency's Brief at 2. The Department moved to dismiss on this ground, and the motion was denied on July 18, 1988. Sugarbush in a letter from Stephen Crampton July 20, 1988, raised further questions and the Board notified the parties on July 29, 1988, that it would treat this letter as a further motion requesting a ruling on the issue of what, if any, weight the IAP was to be given in this proceeding. A ruling on this motion was deferred until after the hearing on the merits.

1.1 Statutory Authority for the IAPs

Permits for indirect discharges of treated sewage are issued under the provisions of 10 V.S.A. Chapter 47 as amended by Act 199 of the 1986 Legislative Session, which took effect on May 17, 1986. Section 3 of Act 199, amending 10 V.S.A. Sections 1259(c) - 1259(e), established general standards for indirect discharges of treated sewage into Class B waters. Section 4, amending 10 V.S.A. Section 1251a(c), provided that the Water Resources Board would adopt regulations establishing detailed water quality standards, and the Secretary of Natural Resources would adopt rules for administration. The Water Resources Board has amended its general anti-degradation standard (Vermont Water Quality Standards Section 1-03(A)), as a partial response to Act 199, and the Board and the Department of Environmental Conservation have underway a joint rulemaking effort to adopt further implementing regulations. These implementing regulations have not yet been issued.

The legislature anticipated some delay in the issuance of implementing regulations, and Section 12(b) of the Act (not modified) provided that "Until the adoption of rules to implement Section 3 of this act, or until three years from the date of passage of this act, whichever occurs first, the secretary may issue permits. ..."

Promptly after passage of Act 199, on September 2, 1986, the Secretary published Policy 199-1, Interim Administrative Procedures (the "IAP"), to explain the procedures to be followed by indirect discharge permit applicants pending issuance of formal regulations. The IAP was not issued through a formal rulemaking process, and does not have the force of law. Since authority to adopt water quality standards is given by the statute to the Water Resources Board alone, the IAP could not have been promulgated as a regulation by the Department alone.

The Permit that is the subject of this appeal was issued by the Secretary under the authority of **Section 12**, but through a procedure that only in part followed the IAP.

1.2 The Weight To Be Given the IAP In This Proceeding

The Department, continuing to deny that the Board has jurisdiction in this case, asserts that if the Board nevertheless hears the appeal it should give the IAP the same "presumption of validity" as a rule or regulation. Department's Brief at 3. In the alternative, the Department argues that the Board should give "substantial deference" to the IAP. Brief at '7. In support of these propositions the Department offers case law from other jurisdictions in which courts were reviewing administrative agency rules or procedures.

This argument is misconceived in several ways. Appellants have not asked for a review of the IAP, and the Board has not conducted one. Since no review of the IAP is being carried out, there can be neither "presumption of validity" nor any "substantial deference" accorded to the agency that propounded the IAP. The cases cited by the Department are simply not relevant to any question in this proceeding. This is an appeal of a permit under 10 V.S.A. Section 1269, and the only question is whether the Department's decisions in this case are fairly and reasonably supported by the evidence in a de novo review.

Perhaps what the Department means to say is that when they have complied with the IAP, this should be conclusive evidence in any appeal. But the Department did not follow the **IAP in** important respects, and the contested provisions of the permit result largely from ad hoc procedures not found in the IAP.

Furthermore, even to the extent the IAP was followed and is relevant, we must bear in mind that the Department's procedures are not regulations and that we cannot give them the force of regulations by treating them as **conclusive**. We do not question the Secretary's authority to adopt such procedures until binding regulations are in place, but the IAP is only a statement of the internal procedures of the Department. In this appeal we have given the IAP only the weight to which an unexplained decision of the Department is entitled.

2. Burden of Proof

The burden of proof falls on a permit applicant to establish by clear and convincing evidence that a proposed **indirect** discharge will not violate water quality standards. 10

V.S.A. Section 1259(e). In this appeal, the Appellants seek to modify the Permit in such a way as to allow increased discharges during summer and winter months. At the hearing the Department's witnesses testified that a relaxation of the permit conditions was equivalent to issuance of a new permit -- the Appellant should be required to show by clear and convincing evidence that such a relaxation would not violate the applicable water quality standard, Section 1-03(A) of the Vermont Water Quality Standards.

The Department is correct. The statute says quite plainly that "no person shall cause any new or increased indirect discharge of wastes" unless and until the Department finds that the discharge will not significantly alter the aquatic biota. 10 V.S.A. Section 1259(e). By appealing an existing permit, instead of applying for a new one, Appellants cannot alter the rule and shift the burden to the Department of justifying its restrictions.

It is true that 10 V.S.A. Section 1269, under which this appeal is heard, requires a de novo hearing, in which factual conclusions of the Department will be upheld only if evidence presented to the Department fairly and reasonably supports its conclusions. Vermont Water Resources Board Rules of Procedure, Rule 30(D). And the Department may not set arbitrary conditions. It may not require permit applicants to wear green cloaks, or to stand at attention. There must be some showing by the Department, in the face of an accusation that it has been arbitrary, that it is within its authority. But the Department is not required to come forward with affirmative evidence to justify its denial of a permit or its refusal to relax a permit restriction. A complete absence of evidence concerning the effect of the discharge might fairly and reasonably support the Department's decision not to relax restrictions it has imposed. Indeed, a lack of evidence might support complete denial of the Permit. The Appellant's demand for evidence to support the restrictions therefore is often misplaced. The burden is with the Appellant to demonstrate that an increased discharge could be allowed during summer and winter without significantly altering the aquatic biota of Rice Brook.

3. Does the Permit Allow Violations of Vermont Water Quality Standards?

Before addressing Appellant's contention that the Permit is too strict, however, we must decide whether on the contrary it is too lenient, since it purports to authorize pollution in excess of the Department's own criteria.

The Department based the Permit conditions that are at issue here on "criteria" for nitrate and phosphate concentrations in Rice Brook. Discharges were limited in such a way that, at least during summer and winter trimesters, the criteria would be met during the "lowest median monthly flow." (Testimony of Mr. Flanders, Transcript at 237.)

However, Vermont Water Quality Standards, Section 2-02(A), require that "applicable water quality criteria shall apply" at all stream flows down to the lowest seven-day average flow that can be expected to recur in a period of ten years (the "7Q10" rate). This is a more stringent condition than the "lowest median monthly flows" used by the Department. (Testimony of Mr. Flanders; Transcript at 224.) Furthermore, even with the Department's more permissive method of calculation, the IAP nitrate and phosphate "criteria" will sometimes be exceeded in April and May. (Testimony of Mr. Flanders, Transcript at 235-258; Permit at 12.)

If the IAP concentration targets were "applicable criteria" with the force of law -- as the Department sometimes appears to be arguing -- the Permit discharge limits for nitrate and phosphate would be inadequate to protect them, and so presumably invalid.

As we noted above, however, neither the IAP nor the ad hoc procedure the Department actually followed in this case are water quality standards or criteria in this sense. Water quality standards and "applicable criteria" are only those specified in statutes and Water Resources Board regulations, see Act 199, Legislative Session of 1986, Section 4, amending 10 V.S.A. Section 1251a(c); Vermont Water Quality Standards, Section 1-01(B)(3). The only water quality standard applicable in this case is the anti-degradation standard of "no significant alteration of the aquatic biota," 10 V.S.A. Section 1259(e) and Section 1-03(A) of the Vermont Water Quality Standards, for which no numerical criteria have yet been established.

The nitrate and phosphate concentration targets used by the Department in this case are no more than internal procedures used to arrive at a result, and are not "applicable criteria" of the Water Quality Standards. If suitable to the purpose for which they are used, the Department is free to calculate monthly rather than seven-day flows, and may even allow its internal targets to be exceeded. Such internal procedures are both contemplated and authorized by 10 V.S.A. Section 1251a and Section 2-01(f) of the Vermont Water Quality Standards.

What then is the relevance of the IAP "criteria" in this case? Department witnesses testified that in their judgment, the nitrate and phosphate concentrations drawn from the IAP and

as used in this case were sufficient to ensure that no significant alteration of the aquatic biota in Rice Brook would occur. (Testimony of Mr. Willard; Transcript at 155, 158, 193, 196; Testimony of Mr. Flanders; Transcript at 231.) We agree. The record shows that the nitrate concentration set for the months of lowest flow, when the stream is most sensitive, are quite stringent, and would preserve water quality at a level frequently found in unpolluted streams. (Testimony of Mr. Willard; Transcript at 155, 185, 187.) There is little evidence in the record concerning the phosphate target, which was not challenged, but it appears to be adequate to prevent significant alteration of the aquatic biota. (Testimony of Mr. Willard; Transcript at 155-156, 188, 193.)

We also uphold the Department's conclusion that the Permit discharge limits are adequate to prevent significant alteration of aquatic biota, despite predictable exceedances of the in-stream target concentrations for nitrate and phosphate during April and May. Department witnesses testified (Testimony of Mr. Willard; Transcript at 202; Testimony of Mr. Flanders; Transcript at 229), and we agree, that discharges of nutrients are less damaging in the spring than at other times of year.

However, we are troubled by the Department's departure in this case from its own usual procedures, especially by the use of spring flows to dilute pollutants. Dilution is generally not a favored method of pollution control. If widely used, it would be inconsistent with Vermont's statutory policy to improve water quality, and to preserve the assimilative capacity of Vermont's lakes and streams for future generations. 10 V.S.A. Section 1260.

Numerical criteria for water quality, as they are usually used in the IAP and as they are applied in the Vermont Water Quality Standards, ordinarily prevent the use of dilution as a method of control.

In short, while we conclude that the Permit does not violate water quality standards, our holding is limited to the facts in this case. Among the facts we consider important are that the discharge is from an existing residential community, that there appears to be no practicable alternative to the permitted discharge, and that there are no other presently known or expected demands on the assimilative capacity of Rice Brook.

We think it important to note, as well, that the Board is required to set water quality standards for nitrate and phosphate, Act 199 Section 4, amending 10 V.S.A. Section 1251a(c). Although we have not yet adopted such standards -- and we express no view on the standards we will set -- if the

Board had adopted the nitrate and phosphate "criteria" found in the IAP, and were those criteria applicable to Rice Brook, the Permit could not have been written as it was.

4. Is There Adequate Evidence to Support the Nitrate Water Quality "Criterion As Used In This Case?"

Appellant's position is that the Permit, far from being too lenient, is so stringent as to be arbitrary.

Their first argument is that there is no evidence in the record -- other than the IAP from which it was drawn -- to support the Department's "criterion" for nitrate concentrations in Rice Brook. The IAP itself is characterized as conclusory and irrelevant. (Appellant's Brief at 8.) The Appellants argue, in effect, that to control nitrates for any purpose except to protect public health is equivalent to a permit condition requiring the permit holder to wear green cloaks, or to stand at attention. It is simply arbitrary.

Some color was given to the Appellant's position by the Department's puzzling refusal to submit any evidence in direct testimony to support its decision to control nitrate discharges. Instead, counsel for the Department insisted that the nitrate "standard" found the IAP was conclusive and could not be reviewed. (Agency's Brief at 3.)

As we have already noted, however, the IAP is only a statement of the Department's internal procedure. To the extent that it records decisions the Department relied in on this case it is relevant evidence, but the IAP at best gives a conclusion without stating the evidence on which it rests.

The question is whether the nitrate criterion relied on in this case was simply arbitrary.

We think it helpful to divide the Department's decision into two parts. Logically, the first step was to decide whether nitrate discharges would be regulated at all. Department witnesses, on questioning, disclosed an adequate factual basis for their decision to regulate nitrate discharges. Unpolluted Vermont streams typically have low levels of nitrates (Testimony of Mr. Willard; Transcript at 156, 160), a fact which is relevant to meeting an anti-degradation standard. Furthermore, a study of Vermont streams showed that even in streams where plant growth is apparently limited by other factors, the addition of nitrogen may stimulate algae growth. (Study on the Productivity of Vermont Upland Streams; Testimony of

Mr. Willard; Transcript at 157, 161-162, 173-174, and 210-211.) There was undisputed testimony that when other sources of nitrogen are removed -- as they would be in this case -- algae will take up nitrate. (Testimony of Mr. Willard; Transcript at 161-162, 183-184.) It also is relevant, and the Department was entitled to take into account, that the Vermont Legislature had determined that nitrate should be controlled in all Vermont streams. 10 V.S.A. Section 1252(c). There was testimony that in the Department's expert judgment all this evidence, although not specific to Rice Brook, is adequate to justify controls on nitrate discharges there. (Testimony of Mr. Willard; Transcript at 156-157, 159-161, 194-195 and 206.) All this evidence taken together fairly and reasonably supports a decision to regulate nitrates in this case.

The second step was to set a numerical water quality target or "criterion" for nitrate on which to base the Permit discharge limits. The Department set a target of two milligrams per liter of water (2 mg/l). (Testimony of Mr. Willard; Transcript at 156.) The Department drew this target from the IAP, where it had been based primarily on existing water quality in Vermont streams. On questioning, Department witnesses testified that no unpolluted streams were known to have nitrate concentrations higher than 2 mg/l. As the purpose of the anti-degradation standard is to maintain existing water quality, this seems an adequate if not necessarily the sole basis for setting such a criterion. It is certainly not arbitrary.

Appellants do not address the 2 mg/l nitrate standard as such. Their position is that nitrates have no effect on aquatic biota, and may not be controlled for this purpose. They have produced evidence that nitrates are not controlled for this purpose in some other jurisdiction, and have described studies conducted in other places for other purposes in which it was shown that control of nitrates would be futile. (Testimony of Mr. Schwinn, Transcript at 119; Testimony of Dr. Moran, Transcript at 378-380.) But so far as the record shows, none of these studies or decisions directly address the basis of the Department's decision, which is accordingly affirmed. As we noted earlier, appellants must show by clear and convincing evidence that higher discharges of nitrate could be tolerated without significant alteration of aquatic biota in Rice Brook. This they have not done.

5. Is the "Trimester" Method of Calculation Too Stringent?

As we have repeatedly seen, the heart of the Settlement Agreement on which this Permit was based was the decision to impose comparatively stringent limits on discharges during

summer months of low stream flow, but to allow excess discharges to be stored during those months for release in the spring. Appellants argue that this arrangement is unreasonable.

If the Department had even further relaxed its usual procedure, Appellants say, and had calculated separate discharge limits for each month, *and* had calculated the "lowest median monthly flow" on a different basis, the discharges allowed during months of low flow could have been increased. The need for storage would have been reduced substantially, but not eliminated, by adopting this proposed "monthly" method instead of the department's ad hoc "trimester" system. (Appellants' Brief at 2.)

The Appellants' principal argument is that the discharge limits in the Permit are designed to attain as much as ninety-nine percent certainty that the water quality targets for nitrate and phosphate will not be exceeded in the months of low stream flow, and that this is excessive. (Appellants' Brief at 2.)

The Department denied that the Permit discharge limits were based on any estimate of probability, and testified that no such calculation could properly be inferred. (Testimony of Ms. Clarkson; Transcript at 365-366.) The Permit discharge limits are based on a "mass balance" equation that relates discharges to the target water quality in a more complex and intuitive way. The Department testified that there is no straightforward way to calculate the probability of exceeding water quality targets, and that such a probability was not an element in their decision. (Testimony of Ms. Clarkson; Transcript at 365-366.)

The Department's position seems to us to be correct. The parties appear to agree that the water quality targets as presently defined by the Department are bound to be exceeded. There is some risk that when these targets are exceeded, the aquatic biota of Rice Brook may be significantly altered. The Department has designed a permit that shifts the exceedances to spring months of high flow, when the risk of altering the biota — and so of violating the standard -- is less. Appellants wish to shift the higher discharges to summer months, when the risk of harm is greater.

It is true that all discharge permits carry some risk of causing change or damage. The only policy that would be free from risk would be a policy of prohibition, and Vermont law does not allow us to achieve certainty at such a cost. "It is the policy of the State of Vermont. ..to allow beneficial and environmentally sound development." 10 V.S.A. Section 1250. Perhaps it would be helpful to define acceptable risk, but we doubt that any general rule can be stated, and none is needed in this case. The Permit will not prevent environmentally sound development, while the Appellant's proposal will admittedly

cause some increased risk of environmental damage. They have not met the burden of showing by clear and convincing evidence that the risk would be negligible.

Therefore, accepting as we do that the Department's decision to regulate nitrate and phosphate discharges was reasonable, we cannot see anything in this record that says the Department should not have insisted on its targets being met during summer months. It is plain the Department tried to allow all the discharges that it could, consistent with the purpose of protecting the aquatic biota of Rice Brook, and there is nothing in the law to prohibit the Department from requiring ninety-nine percent certainty that the criteria it finally chose would be met, even if ninety-nine percent certainty were what the Department set out to achieve.

Implicit in Appellants' argument is that the expense and aesthetic damage caused by a 9.5 million gallon storage tank are excessive. But this, even if correct, would not be relevant. A feasible method of environmental protection cannot be avoided simply because it is expensive or inconvenient.

In short, the Appellants have not met the burden of showing by clear and convincing evidence that the "trimester" method is too stringent.

Conclusion

Although we uphold the challenged Permit conditions, we are troubled by the positions the Department has taken in this appeal. They have claimed, on the one hand, that their internal procedures have the force of law, although these procedures were not and could not be promulgated as regulations. On the other hand, they have claimed unreviewable discretion to depart from those procedures at will. Our decision upholding this Permit should not be taken as a broad approval of the Department's ad hoc procedures or of the positions it has taken in this appeal.

Findings of Fact

1. On May 12, 1988, the Department of Environmental Conservation (the "Department") acting on behalf of the Secretary of the Agency of Natural Resources issued Discharge Permit No. ID-S-0013 (the "Permit") to Snowridge, Inc. and Mountain Wastewater Treatment, Inc. (collectively,

"Sugarbush") authorizing the indirect discharge of treated sewage effluent into Rice Brook, a Class B body of water, according to the terms and conditions of the Permit.

2. The Appellants are 17 associations of the owners of condominium units and homes at Sugarbush whose wastewater accounts for a majority of the influent treated by Sugarbush at the treatment plant that is the subject of the Permit. (Notice of Appeal.)
3. The Permit also requires construction of a 9.5 million gallon tank to be used for storage of treated sewage effluent during periods of predicted low flow in the receiving waters, Rice Brook, and for release during periods of predicted high flow. (Permit at 10, 14-17.)
4. The Permit requirements are designed to guard against exceedence of in-stream concentrations of various toxic and nutrient parameters downstream in Rice Brook from the Sugarbush discharge. (Permit at 10-13.)
5. The permitted concentration limits relevant to this appeal are .015 mg/l for total dissolved phosphorus (TDP) and 2.0 mg/l for nitrate. (Permit at 12.)
6. On June 10, 1988, Appellants filed their Notice of Appeal in this matter alleging, among other things, that the relevant in-stream concentration limits required by the Permit, and the method used by the Department to determine allowable discharges and required storage are unreasonably overprotective. (Notice of Appeal.)
7. On September 3, 1986, the Department of Water Resources and Environmental Conservation (now the Department of Environmental Conservation), issued Policy 199-1, which established the Department's Interim Administrative Procedures (IAPs). The IAPs explain in detail how applications for indirect discharges of treated sewage effluent into Class B waters should be prepared and how the Department will implement the provisions of Act 199 in the absence of permanent rules. (Policy 199-1, September 3, 1986.)
8. One method of compliance set forth in the IAPs is to construct a wastewater treatment plant that will treat and discharge sewage effluent such that selected in-stream limits of chemical parameters will not be exceeded in the receiving waters. These in-stream limits act as surrogates for the statutory standard of "no significant alteration of the aquatic biota." (Testimony of Mr. Flanders, Transcript at 261.)

9. The Department, through the IAPs, distinguishes between toxic and nutrient parameters, regulating the concentrations of toxic parameters on the basis of 7Q10 flows and nutrient parameters -- those that "do not have an immediate water quality impact but rather exert an impact over a two to three week period." -- on the basis of low median monthly flows. (IAPs, Section 8-04.)
10. In computing the quantities of effluent that may be discharged into Rice Brook in any given month under the Permit, the Department grouped the months of the year into three trimesters, according to historical stream flow data from a stream similar to Rice Brook, Kent Brook. (Prefiled Testimony of Mr. Flanders, at 7; Testimony of Mr. Flanders, Transcript at 240.)
11. The three trimesters are summer (June - October), winter (November - March) and spring (April and May). (Prefiled Testimony of Mr. Flanders, at 7.)
12. The median stream flow for each month of all trimesters was determined, based on an analysis of the historical data from Kent Brook. (Testimony of Mr. Flanders, Transcript at 239-40.)
13. The Department used the following method to compute the median stream flow for a given month: average daily flows for all days of the month for the entire period of record are listed, and the median value of that list is selected as the median stream flow for the month. (Testimony of Mr. Flanders, Transcript at 163-65.)
14. For each trimester, the month with the lowest median flow was identified. The stream flow volume so identified was labeled the Low Median Monthly (LMM) flow for the relevant trimester. (Prefiled Testimony of Mr. Flanders, at 7; Permit at 2.)
15. For each month of the summer or winter trimester, including the non-LMM months, the Department used LMM flows to set allowable effluent discharge volumes. (Testimony of Mr. Flanders, Transcript at 236-37.)
16. The Department set allowable discharge rates for all months of the summer and winter trimesters based on the LMM flows for those trimesters -- as opposed to monthly median flows for each month individually -- because on a statistical basis under this system in-stream concentrations would be at or above their limits 50% of the time during the LMM month in the summer and winter trimesters. The higher lows in the non-LMM months of the summer and winter trimesters will provide greater dilution and therefore a lower

in-stream concentration. The Department believes that this greater dilution in the months adjacent to the LMM months is necessary to prevent in-stream concentrations from being at or above their limits for more than 30 days at a time. The Department believes that exceedence of in-stream limits for more than one month at a time will cause a significant alteration of the aquatic biota. (Testimony of Mr. Flanders, Transcript at 243-46.)

17. The Department's trimester system anticipates that in-stream limits will be exceeded in the spring trimester, April and May, because that is when the millions of gallons of effluent stored during the rest of the year must be discharged. (Testimony of Mr. Flanders, Transcript at 246, 262.)
18. The Department used a mass balance equation or model to determine the volumes of effluent that could be discharged while maintaining in-stream concentrations at or below the set limits. The mass balance equation yields the in-stream concentrations of a given parameter when values are chosen for each of four variables: stream flow, background concentration of the parameter, discharge flow and concentration of the parameter in the effluent entering the receiving stream (effluent concentration). When a particular in-stream concentration level is chosen, the equation can be solved for discharge flow. (Prefiled Testimony of Dr. Moran, at 10; Prefiled Testimony of Ms. Jamieson, at 2-3.)
19. The Permit discharge limits are not based on and do not produce a ninety-nine percent certainty that water quality targets for nitrate and phosphate will not be exceeded in the months of low stream flow.
20. The Permit contains an in-stream concentration limit for nitrate of 2 mg/l, that is, the Permit requirements, including effluent storage capacity, are designed to avoid exceedence of an in-stream nitrate concentration limit of 2 mg/l. (See Permit at 12.)
21. The 2 mg/l limit for nitrate was taken from the IAPs, and is not based on evidence specific to Rice Brook. (Testimony of Mr. Willard, Transcript at 198.)
22. In selecting 2 mg/l as the nitrate limit for the IAPs, the Department relied on a literature search, studies of Vermont waters conducted by or for the Department, and the collective judgment of Department personnel, including Mr. Willard, a Department witness. (Testimony of Mr. Willard, Transcript at 205-06.)

23. There is very little scientific literature on the subject of an appropriate level for nitrate concentration in mountain streams, and nothing addressing the question of what concentration levels will significantly alter the aquatic biota. (Testimony of Mr. Willard, Transcript at 159-60.)
24. The principal basis for the Department's selection of a 2 mg/l standard for nitrate was its field studies including a study titled "A Study of on the Productivity of Vermont Upland Streams" (the "Upland Stream Study"). (Testimony of Mr. Willard: Transcript at 159.)
25. Nitrate is a nutrient similar to phosphorus and plays a similar role in the eutrophication of streams. Further research is required to more precisely define the role of nitrate in the eutrophication of streams and the effect of ratios of nitrogen and phosphorus on the kinds of algae species that occur. Streams which are not impacted by discharges containing nutrients can be expected to have median concentrations of nitrates as low as 0.20 mg/l. Data results from the Upland Stream Study indicate that even the high productivity streams contained median nitrate concentrations less than 2 mg/l. Concentrations of nitrate nitrogen greater than 2 mg/l are not normally in surface waters in Vermont, even under the most polluted conditions. (Testimony of Mr. Willard; Transcript 157.)
26. The information on which the 2 mg/l nitrate criterion is based is relevant to evaluating the potential affect of the proposed discharge on Rice Brook. (Testimony of Mr. Willard; Transcript 156, 157, 159-161, 194-195 and 206.)
27. Whether or not Rice Brook is "phosphorus limited" the addition of nitrate may stimulate the growth of algae on the streambed, especially if other sources of nitrogen are removed. (Testimony of Mr. Willard; Transcript 159-161, 183-184.)

Conclusions of Law

1. Rice Brook constitutes "waters" of the state of Vermont within the meaning of 10 V.S.A. Section 1251(13).
2. The disposal of treated sewage effluent from the Sugarbush wastewater treatment facility constitutes "waste" within the meaning of 10 V.S.A. Section 1251(12).

3. The discharge, either directly or indirectly, of any "waste" into the "waters" of the State of Vermont requires a permit under 10 V.S.A. Chapter 47. In order to obtain a Discharge Permit, the Secretary of the Agency of Natural Resources (or his or her designee, in this case the Department) must determine:

. . .that the proposed discharge will not reduce the quality of receiving waters below the classification established for them and will not violate any applicable provisions of state or federal laws or regulations. . .(10 V.S.A. Section 1253(c)).

4. The term "applicable state regulations" as used in 10 V.S.A. Section 1263(c) means rules adopted by a state agency in the manner provided for in 3 V.S.A. Section 836-846.
5. The IAPs are not rules adopted in the manner provided for in 3 V.S.A. Section 836-846 and therefore are not "applicable state regulations" within the meaning of 10 V.S.A. Section 1263(c).
6. The applicable Vermont statutory standard governing this proceeding, established in 10 V.S.A. Chapter 47 as amended by Act 199 effective May 17, 1986, is that the discharge in question must not "significantly alter the aquatic biota in the receiving waters," in this case Rice Brook (10 V.S.A. Section 1259(e)).
7. The applicable Vermont state regulations applicable to this proceeding are the Vermont Water Quality Standards, as amended effective January 8, 1987 to establish the following water quality standard (Section 1-03(A)):

The aquatic biota shall be considered to have been significantly altered whenever a discharge or combination of discharges results in a change in the number or diversity of aquatic biota that exceeds the range of natural variation within the receiving waters where such a change results in a measurable alteration of the essential biological characteristics of the receiving waters. The natural variation of aquatic biota shall be determined by sampling and statistical protocols established by the Secretary as provided for in section 2-01(f) of these rules.

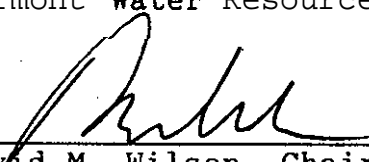
8. The only water quality standard applicable in this case is the standard of "no significant alteration of the aquatic biota" (10 V.S.A. Section 1259(e) and Section 1-03(A) Vermont Water Quality Standards) for which no numerical criteria have yet been established.
 9. The Appellant has the burden of showing that the approach taken by the Department in issuing the Permit is arbitrary and that there is clear and convincing evidence to show that increased discharge could be allowed during the summer and winter trimesters without significantly altering the aquatic biota of Rice Brook.
 10. The Board agrees with the Department's conclusion that the nitrate and phosphate concentrations drawn from the IAP, as used in this case, are sufficient to ensure that no significant alteration of the aquatic biota in Rice Brook would occur and therefore concludes that the Permit does not violate the applicable water quality standard.
 11. The Appellants have failed to show that the Department acted arbitrarily in applying the 2 mg/l nitrate standard.
 12. The Appellant's have not met the burden of showing by clear and convincing evidence that the "trimester" method as used by the Department in this case is too stringent.
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Order

The appeal of the Condominium and Homeowners Association at the Sugarbush resort from Discharge Permit #ID-9-0013 as issued by the Department is hereby denied. The decision of the Department is affirmed.

Dated this **31st** day of March, 1989 at Berlin, Vermont.

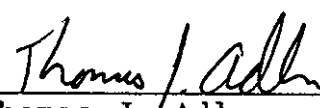
Vermont Water Resources Board



David M. Wilson, Chairman



William D. Countryman



Thomas J. Adler



Elaine B. Little



Sheldon M. Novick

:Sugar.FF