

**State of Vermont  
WATER RESOURCES BOARD**

**RE: City of South Burlington and Town of Colchester  
Docket No. WQ-03-02**

**FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER  
(Issued on December 29, 2003)**

As set forth in more detail herein, the Water Resources Board ("Board") concludes that NPDES Discharge Permit #3-1278 ("Discharge Permit") should be issued to the City of South Burlington ("City") and the Town of Colchester ("Town") with amendments to the conditions related to discharges of phosphorous contained in the Discharge Permit issued by the Agency of Natural Resources ("ANR") that is the subject of this appeal.

**I. PROCEDURAL HISTORY AND JURISDICTIONAL STATEMENT**

The parties to this appeal are the City of South Burlington and the Town of Colchester ("Applicant"), ANR, and the Conservation Law Foundation ("CLF"). On February 28, 2003, the Conservation Law Foundation ("CLF") appealed the Discharge Permit to the Board. The Discharge Permit was issued by the Secretary of ANR pursuant to 10 V.S.A. § 1263, and it authorizes the Applicant to discharge from the Airport Parkway Wastewater Treatment Facility ("Airport Parkway WWTF") to the Winooski River. The appeal was filed pursuant to 10 V.S.A. § 1269. The appeal was timely filed pursuant to 10 V.S.A. § 1269 which provides that any person or party in interest aggrieved by an act or decision of the secretary of ANR pursuant to [10 V.S.A. Ch. 47, Subchapter 1] may appeal to the Board within thirty days.

On September 9, 2003, the Board conducted a hearing on the appeal. Pursuant to the agreement of the parties no site visit was conducted in this case.

The Board deliberated in this matter on October 15, 2003, October 21, 2003, November 10, 2003, December 2, 2003 and December 19, 2003. On December 19, 2003, the Board declared the record complete and adjourned the hearing. This matter is now ready for decision.

**II. ISSUES**

The issues in these consolidated appeals may be summarized as follows:

1. Can the ANR lawfully issue a permit which authorizes phosphorous limits in excess of those required and authorized by the approved Lake Champlain Phosphorous TMDL?

2. Can the ANR issue a permit that authorizes the discharge of biological oxygen demand, total suspended solids and ammonia when there is a reasonable potential for the discharge of these pollutants to cause or contribute to a violation of the Vermont Water Quality Standards (VWQS)?
3. Can the ANR issue a permit whose monitoring conditions are not sufficient to determine compliance with conditions of the permit?

### III. FINDINGS OF FACT

To the extent that any proposed finding of facts are explicitly included below, they are granted; otherwise, they are denied. See Secretary, Agency of Natural Resources v. Upper Valley Regional Landfill Corporation, 167 Vt. 228, 241-42 (1997); Petition of Village of Hardwick Electric Department, 143 Vt. 437, 445 (1983).

#### A. Background

1. The City of South Burlington operates the Airport Parkway WWTF, located off Airport Parkway in the City of South Burlington.
2. The Airport Parkway WWTF receives wastewater from the City and, by written contract, dated October 14, 1992, between the City and the Town, from portions of the Town.
3. The Airport Parkway WWTF provides primary and secondary treatment for the wastewater received from the City and Town, and discharges the treated waste into the Lower Winooski River.
4. A Waste Management Zone, beginning at the outfall of the Airport Parkway WWTF, and extending downstream 1.2 miles in the Winooski River, has been established to accommodate the discharge.
5. Discharge Permit #3-1278, issued by ANR in 1998, authorized a maximum monthly average flow of 2.3 millions of gallons per day (MGD). Current flows at the Airport Parkway WWTF are approximately 1.4 MGD. The Discharge Permit is valid for five years and Special Condition "C" of the permit required that the City and Town reapply to ANR by September 30, 2002 to continue the discharge after the Discharge Permit expires. The City and Town reapplied for the Discharge Permit on September 27, 2002. ANR issued the Discharge Permit on January 29, 2003 and it is this Discharge Permit that is the subject of the appeal.

#### B. Phosphorous

6. The Discharge Permit issued by ANR has monthly, or 30-day average, phosphorus effluent limitations of 0.8 milligrams per liter (mg/L) and 15.3 pounds per day (lbs/day), which would allow an annual phosphorus load of 2.534 metric tons per year (mt/year). These discharge limits assume that the Airport Parkway WWTF is operating at its maximum permitted flow of 2.3 MGD. The Airport Parkway WWTF is currently operating at approximately 65% of its permitted capacity.
7. The *Lake Champlain Phosphorus TMDL* (LCP-TMDL) specifies that the annual average TMDL phosphorous wasteload allocation for the South Burlington Airport Parkway Facility WWTF is 1.906 mt/yr. (4,201 lbs/ yr.), at its currently permitted flow of 2.3 MGD.
8. The City and the ANR have submitted to the Board a document captioned "Stipulation of the Vermont Agency of Natural Resources and the City of South Burlington," dated September 5, 2003 (Stipulation). Therein, the City and ANR have requested that the Board include a new *annual* phosphorous load limit of 4,201 pounds (or 1.906 metric tons) and retain the *monthly average* phosphorous concentration limit of 0.8 mg/l in any renewal permit that it may issue.
9. During the merits hearing, the Board took official notice of the LCP-TMDL. The following portions of the LCP-TMDL are relevant to the issues raised in this proceeding:

*All phosphorous wasteload allocation values in this document are expressed in units of metric tons per year . . . consistent with previous reports and plans . . . However, phosphorous load limits in discharge permits are generally given in units of pounds per day. To facilitate comparison, the following conversions may be used.*

*mt/yr = 1,000 kg/yr = 6.04 lbs/day*

*The TMDL proposes two changes to the current phosphorus removal policy for Vermont wastewater treatment facilities: . . . The second change will apply an annual average load limit, calculated at an effluent phosphorous concentration of 0.6 mg/l at the currently permitted flow, to all facilities that are currently required to achieve a 0.8 mg/l limit. The 0.6 mg/l concentration value would not be specified directly in the discharge permits, but would be used as a basis for calculating the annual load limits . . . This second change will affect the following 25 facilities . . . South Burlington Airport Park.*

*As the term implies, TMDLs are often expressed as maximum daily loads. However, as specified in 40 CFR 130.2(l), TMDLs may be expressed in other terms when appropriate. For Lake Champlain, the TMDL is expressed in terms of allowable annual loadings of phosphorous. Although critical conditions occur during the summer season in some lake segments when algae growth is more likely to interfere with uses, water quality in Lake Champlain is generally not sensitive to daily or short term loading. With a water residence time of about two years (Vermont DEC and New York State DEC), the lake generally responds to loadings that occur over longer periods of time (e.g., annual loads).*

10. There is a relationship between flow, load and concentration such that as the Airport Parkway WWTF begins to operate closer to its design flow capacity of 2.3 MGD in future years it will require a corresponding reduction in concentration of phosphorous discharged to meet the annual load limit under the permit.
11. As the WWTF approaches its permitted design flow capacity, it will be necessary to begin reducing the phosphorous effluent concentration to comply with the annual average mass loading limit (4,201 pounds per year/1.906 metric tons per years) contained in the LCP-TMDL. This relationship between flow, load and concentration makes it possible to reconcile the 0.8 mg/l monthly concentration limit in the Discharge Permit and the 0.6 mg/l concentration value used as the basis for calculating the annual average load limit in the LCP-TMDL. On an annual basis, the Airport Parkway WWTF can achieve the annual average load limit of 4,201 lbs (which is equivalent to an annual average concentration of 0.6 mg/l at full design flow) because it has the operational flexibility on a monthly basis to operate in a manner where some months are well below the 0.6 mg/l value, while other months are at the 0.8 mg/l value. Over the course of a one year cycle, the Airport Parkway WWTF can be operated such that it will average a 0.6 mg/l value to meet the annual average load limit, but this does not require that the facility operate at 0.6 mg/l on a monthly basis.

C. BOD, UOD, and TSS

12. The Discharge Permit for Airport Parkway WWTF contains limits for Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and Ultimate Oxygen Demand (UOD).
13. The BOD and TSS limits contained in the Discharge Permit are mandated federal technology based effluent limits (TBELs) for secondary treatment, as defined in 40 CFR 133.102. These limits in the Discharge Permit are

expressed as 45 mg/l (863 lbs.) weekly average and 30 mg/l (575 lbs.) monthly average for BOD and 45 mg/l (863 lbs.) weekly average and 30 mg/l (575 lbs.) monthly average for TSS.

14. TBELs are based on the ability of certain treatment technologies to produce a specific effluent quality.
15. The Discharge Permit also contains a 50 mg/l maximum day BOD limitation. ANR supplements the federal TBEL with this restrictive limit to prevent a gross one-day effluent violation to be offset by weekly and monthly sampling events.
16. The UOD limit in the Discharge Permit is a Water quality based effluent limit (WQBELs) based on the Waste Load Allocation Order (WLA Order) for the Lower Winooski River adopted by ANR on September 15, 1988. The UOD limit in the Discharge Permit is 2060 lbs. of UOD maximum/day, during the summer period (June 1<sup>st</sup> through September 30<sup>th</sup>).
17. Water quality based effluent limitations are developed for a specific discharge of pollutant(s) to ensure that compliance with instream water quality standards is maintained in a specific reach of receiving water.
18. The WLA Order is based on a Waste Load Allocation Study that was conducted by ANR in the 1970's and based on comprehensive data collected from 1975-1979. During the data collection phase of the study, water chemistry and physical data were collected 24 hours a day over several days from many sampling locations from the IBM WWTF in Essex Junction to the mouth of the river, as well as from all treatment facilities discharging into the Lower Winooski River. The data collected was used to calibrate a mathematical model which can describe the River's response to discharges of oxygen demanding waste at critical river flow and temperature conditions. ANR used the calibrated and verified mathematical model to assign UOD limits to all discharges on the Lower Winooski River.
19. As specified in the permit for Airport Parkway WWTF, during the summer period (June 1<sup>st</sup> through September 30<sup>th</sup>) the Discharge Permit requires that a maximum daily UOD limitation of 2060 lbs./day. The condition is only applicable in the summer months because oxygen demand is a water quality concern during Vermont's warm weather months. In conditioning the Discharge Permit in this manner, UOD becomes the limiting parameter for oxygen demand since in deriving the UOD of a facility's discharge both the BOD and the Total Kjeldahl Nitrogen (TKN) in the effluent are considered when doing the overall UOD calculation.

20. While BOD measures only the oxygen depleting effect of carbonaceous compounds, and TKN measures only the oxygen depleting effect of nitrogen compounds, UOD takes the effect of both of these factors into account.
21. It is generally irrelevant to the biological health of the river how BOD and TKN are allocated as respective percentages of UOD. No significant environmental impact is anticipated from the relative proportions of these compounds in the context of this permit, provided the UOD limit is met.
22. Pursuant to a contract between the City and the Town, the Town agreed to assign its allocation of UOD under the WLA Order to the City. The Wasteload Allocation Order allocates 1460 lbs. UOD/day to the Airport Parkway WWTF and 600 lbs. UOD/day to the Colchester #1 WWTF. The combined total allocation for the two plants is 2060 lbs. UOD/day.
23. The Town is a co-permittee with the City under the Discharge Permit and is bound by the permit terms and conditions. Accordingly, while the Town continues to utilize its allocation under the WLA Order, the physical location of the discharge has changed because the Colchester WWTF is not currently operating and using its allocation. There will be no adverse impact on water quality as a result of the change in the physical location of the load of oxygen demand allocated to the Town under the WLA Order.

D. Ammonia

24. The permit for the WWTF does not contain a discrete or specific effluent limit for Ammonia.
25. Ammonia is a potential concern with regard to impacts on water quality because ammonia has the ability to create oxygen demand and deplete in-stream oxygen levels.
26. There is a limitation for UOD in the Discharge Permit, which does restrict the discharge of Total Kjeldahl Nitrogen (TKN). TKN is the sum of organic nitrogen and ammonia nitrogen. As a component of TKN, ammonia is therefore by addressed by the Discharge Permit.
27. A second potential concern related to ammonia discharges involves toxic concentration levels.
28. To correctly determine the proper ammonia effluent concentration in a discharge, the volume of the discharge must be considered and the 7Q10 flow must be applied.

29. Based on current river data, the 7Q10 of the lower Winooski River in the vicinity of the discharge is approximately 167 cfs. The facility has a permitted discharge of 2.3 MGD. Taken together, this flow and discharge result in an instream effluent to river flow ratio of 1 to 47.6 or an instream waste concentration of 2.1%.
30. The dilution of the Winooski River must be considered in assessing compliance with the VWQS. The Lower Winooski River has significant, consistent flow in the vicinity of the discharge from the Airport Parkway WWTF.
31. The Department of Environmental Conservation (DEC) derived ammonia criteria, which is based on the 1999 Updated EPA Ammonia Criteria, indicates that the instream ammonia criteria in the Winooski River should be 1.96 mg/l chronic and 8.11 mg/l acute, based on river pH of 7.8 and a summer time temperature of 22 degrees Celsius.
32. Monitoring data collected from other similar secondary wastewater treatment facilities, using comparable treatment processes, indicates that summer ammonia effluent concentrations are typically 1 to 5 mg/l.

E. Whole Effluent Toxicity (WET) Testing

33. The permit for the WWTF requires one WET test over the five year duration of the permit for the WWTF. WET tests measure the specific toxicity levels in effluent.
34. WET testing has detected some toxicity in the effluent discharged from the Airport Parkway WWTF.
35. The WET testing requirements in the permit are based on ANR's 1994 Vermont Toxic Discharge Control Strategy (Strategy).
36. The Strategy was reviewed by the Environmental Protection Agency (EPA). However, it was not approved by EPA.

F. Calculation of Removal Efficiency

37. Condition A-5 of the Discharge Permit requires that effluent concentrations of BOD and TSS not exceed 15% of the influent concentration.
38. The Discharge Permit requires the effluent to be monitored on a weekly basis and requires the influent be monitored on a monthly basis.

39. ANR normally requires the minimum influent sampling frequency to be once a month. In cases where a wastewater treatment facility is receiving influent that is stronger than normal concentrations (e.g. due to industrial inputs) or where the 85% BOD and TSS removal requirement is not being met, ANR has required more frequent influent sampling. In this case the Airport Parkway WWTF receives normal influent and consistently achieves more than 90% removal of BOD and TSS.

#### **IV. CONCLUSIONS OF LAW**

##### **A. Standard and Scope of Review**

This appeal was filed pursuant to 10 V.S.A. § 1269. Section 1269 provides that appeals to the Board are de novo. It is well-settled that in a de novo appeal, the Board does not review ANR's prior decision to determine whether ANR acted properly. Rather, the Board hears the case "as if there had been no prior proceedings." In re Deerfield Hydroelectric Project, Nos. WQ-95-01 and WQ-95-02 (Consolidated), Chair's Evidentiary Rulings at 4 (Vt. Water Res. Bd. Feb. 5, 1997) (construing In re Killington, Ltd., 159 Vt. 206, 214 (1992)).

##### **B. Burden of Proof**

The general rule in administrative proceedings is that the applicant or petitioner bears the burden of proof. Lamoille, Findings of Fact, Conclusions of Law, and Order at 45 (Nov. 5, 1996), citing Petition of Lyndonville Village, 121 Vt. 185, 190-191 (1959). The City and the Town are the applicant in this proceeding and, therefore, they bear the burden of proof.

The burden of proof includes both the burden of production and burden of persuasion. The burden of production in this de novo proceeding means the burden of producing sufficient evidence upon which the Board can make positive findings that the Project, complies with the applicable provisions of the state and federal law.

The burden of persuasion refers to the burden of persuading the Board that certain facts are true. Lamoille at 46. The party with the burden of persuasion must establish the elements of its case by a preponderance of the evidence. That generally occurs when the fact finder is satisfied that a proposition is more likely to be true than not true. Id. The Vermont Supreme Court has provided further guidance with respect to the allocation of the burden of proof, specifically the risk of non-persuasion in an administrative proceeding. "The fact that a party has the burden of proof does not mean that he must necessarily shoulder it alone; it simply means that he, and not the other party, bears the risk of non-persuasion." In re Quechee Lake Corporation, 154 Vt. 543, 553 (1989) (Quechee Lakes). Thus, as in the Quechee

Lakes decision, the Board may consider all of the evidence, including that provided by parties other than the applicant in determining whether the burden of persuasion has been met.

Where, as in this appeal, only certain specific issues have been appealed to the Board for its *de novo* review, the Applicant must produce evidence and persuade the Board, in connection with those preserved issues only, that the project complies with applicable provisions of law. See Hannaford at 10,18-20. For the reasons set forth below, the Board concludes that the Applicant has met its burden of production and the record as a whole supports the conclusion that the permit should issue with the amendments to the conditions imposed in the Discharge Permit issued by ANR provided below.

### **C. Discussion**

With the above in mind, the Board addresses the issues raised in this appeal.

#### *Phosphorous*

- (I) Can the ANR lawfully issue a permit which authorizes phosphorous limits in excess of those required and authorized by the approved Lake Champlain Phosphorous TMDL?

The dispute regarding this issue centers on the question of whether the Discharge Permit issued by ANR complies with the terms of the LCP-TMDL. The LCP-TMDL clearly specifies that the *annual*<sup>1</sup> average TMDL phosphorous wasteload allocation for the Airport Parkway Facility WWTF is 1.906 mt/yr. (4,201 lbs./ yr.), at its currently permitted maximum monthly average flow of 2.3 MGD. However, the permit issued for the facility allows an annual phosphorus load of 2.534 metric tons per year (mt/year).

To rectify this discrepancy, the Applicant and ANR filed The Stipulation proposing that the Board include a new *annual* phosphorous load limit of 1.906 mt/yr. (4,201 lbs./yr.) and retain the *monthly average* phosphorous concentration limit of 0.8 mg/l in the permit for the Airport Parkway WWTF. The Applicant and ANR argue that adopting the proposed condition in the stipulation would bring the Discharge Permit into conformance with LCP-TMDL.

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<sup>1</sup> The Board notes that TMDLs imply that daily rather than annual loads for pollutants of concern will be established for impaired waters. However, 40 CFR 130.2(l) provides that TMDLs may be expressed in other terms when appropriate. For Lake Champlain, *the LCP-TMDL is expressed in terms of allowable annual loadings of phosphorous.*

CLF contends that including an annual phosphorous load limit in the Discharge Permit for the Airport Parkway WWTF is not sufficient to conform to the terms of the LCP-TMDL. CLF argues that because the annual load limit for Phosphorous is based on the Airport Parkway WWTF reducing the concentration of phosphorous from 0.8 mg/l to 0.6 mg/l, the Discharge Permit must include a *monthly average* phosphorous concentration limit of 0.6 mg/l (in place of the *monthly average* phosphorous concentration limit of 0.8mg/l that is in the Discharge Permit issued by ANR) for the Airport Parkway WWTF to comply with the LCP-TMDL and meet its annual load limits while operating at its permitted capacity of 2.3 MGD.

In order for the Board to resolve this issue it first must consider the legal effect of a TMDL. One aspect of this consideration relates to whether permits issued by ANR are required to be consistent with an applicable TMDL.

The Board concludes that state and federal law require that a discharge permit be consistent with provisions of an approved TMDL that is clearly applicable to the discharge. Vermont Water Pollution Control Regulations, Rule (VWPCR)13.4(d) provides that a discharge permit must include:

any more stringent limitation, including those (i) necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to Vermont law or regulations (under authority preserved by section 510 of the Federal Act), or (ii) necessary to meet any other Federal law or regulation, or **(iii) required to implement any applicable water quality standards, such limitations to include any legally applicable requirements necessary to implement total maximum daily loads established pursuant to section 303 (d) and incorporated in the continuing planning process approved under section 303(e) of the Federal Act an any regulations and guidelines issued pursuant thereto** (emphasis added).

With regard to federal law, 40 CFR 122.4(d) states that “No permit may be issued when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.” The LCP-TMDL identifies reductions in phosphorous loading from the Airport Parkway WWTF that are a necessary component of a larger plan (the other actions in the LCP-TMDL) to bring Lake Champlain into compliance with the VWQS for phosphorous. Accordingly, conditions in the Discharge Permit that are not as stringent as those called for in the LCP-TMDL will not ensure compliance with the VWQS. As such, 40 CFR 122.4(d) requires in this case that the more stringent conditions for reductions in phosphorous loading set forth in the LCP-TMDL are included in the Discharge Permit in order for the Airport Parkway WWTF to comply with the VWQS.

In addition, common sense dictates that permits must, at a minimum, incorporate applicable provisions of a TMDL. If a TMDL indicates certain actions must be taken to bring a waterbody into compliance with VWQS, the actions set forth in the TMDL must be incorporated into applicable discharge permits in order to implement the TMDL and commence the process of cleaning up the polluted water.

The LCP-TMDL requires that Airport Parkway WWTF covered by the LCP-TMDL comply with an *annual average* load limit of 4,201 lbs./yr. (1.906 mt/yr). As long as this annual limit is included in the Discharge Permit, the Discharge Permit is consistent with the LCP-TMDL. The LCP-TMDL does *not* require that the Discharge Permit include a *monthly average* phosphorous concentration limit of 0.6 mg/l in addition to the annual load limit of 1.906 mt/yr. (4,201 lbs./ yr.) Accordingly, the Board finds that if the Discharge Permit is amended to include the limit on phosphorous proposed in The Stipulation filed by the Applicant and ANR, the Discharge Permit will comply with the LCP-TMDL and CLF's appeal of the Discharge Permit on this issue will be denied.

CLF also argues that compliance with LCP-TMDL limit is not sufficient to ensure that the discharge will comply with the VWQS for phosphorous. The issue raised by CLF in this appeal is:

Can the ANR lawfully issue a permit which authorizes phosphorous limits in excess of those required and authorized by the approved Lake Champlain Phosphorous TMDL?

The issue does not address whether the discharge in question will meet VWQS, even if it complies with the LCP-TMDL. Accordingly, as long as the Applicant can prove that the Discharge Permit is in compliance with the LCP-TMDL, it will meet its burden of persuasion with regard to the above issue in this appeal. Having answered this question in the affirmative, the Board need not address CLF's arguments that the limits in the LCP-TMDL are insufficient to assure compliance with VWQS or the Applicant and ANR's arguments that CLF is precluded from collaterally attacking a duly adopted, final TMDL.<sup>2</sup>

### *BOD, TSS and Ammonia*

The second issue raised by CLF is:

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<sup>2</sup> Similarly, the Board finds that CLF's argument that pursuant to ANR Vermont Water Pollution Control Permit Regulations § 13.4(c) the Discharge Permit is required to include an average and maximum daily quantitative limitation for phosphorous is waived because this claim was not properly raised as an issue on appeal.

- (ii) Can the ANR issue a permit that authorizes the discharge of biological oxygen demand (BOD), total suspended solids (TSS) and ammonia when there is a reasonable potential for the discharge of these pollutants to cause or contribute to a violation of the Vermont Water Quality Standards (VWQS)?

The Board will first address the limits for BOD and TSS in the Discharge Permit. In order to do so the Board must also address limits for ultimate oxygen demand (UOD) in the Discharge Permit.

#### UOD, BOD and TSS

The Discharge Permit issued by ANR contains limits for BOD and TSS that are expressed as 45 mg/l (863 lbs.) weekly average and 30 mg/l (575 lbs.) monthly average. These limits are mandated TBELs for facilities that utilize secondary treatment. 40 CFR 133.102.

The Discharge Permit also contains limits for UOD of 2060 lbs. of UOD maximum/day. This UOD limit is a WQBEL based on a Wasteload Allocation (WLA) Study conducted for the Lower Winooski River by ANR in the late 1970's and a subsequent WLA Order issued by ANR in 1988.

CLF argues that limits for BOD, UOD and TSS included in the Discharge Permit are not stringent enough and, if authorized, the discharge from the Airport Parkway WWTF has the reasonable potential to cause or contribute to violation of the VWQS for these pollutants. The crux of CLF's position is that the WLA Study is based on critical conditions and the WLA Study indicates that the VWQS for oxygen demanding pollutants would just barely be met at the critical conditions it modeled. CLF also argues that the WLA Study and Order are outdated and there is likely less assimilative capacity in Lower Winooski River today than when the WLA Study was conducted in the late 1970's. As a result, CLF claims the WLA Order is flawed and cannot be relied upon to assure compliance with the VWQS.

ANR testified that based on the WLA Study it determined that UOD is the limiting factor for oxygen demand in the Lower Winooski River. Accordingly, the WLA Order limits the discharge of UOD rather than BOD or TKN to regulate the discharge of oxygen demanding pollutants to the Lower Winooski River. The Board is persuaded that UOD is an appropriate parameter to use as the limiting factor for oxygen demand in the Lower Winooski River and that applying the limits for UOD in the WLA Order to the Discharge Permit will assure that the level for oxygen demand in the receiving water meets VWQS.

CLF raises a valid point with regard to the applicability of the WLA Order given that the Order is more than 15 years old and the WLA Study was conducted over 20

years ago. However, the Board was not persuaded that simply because of the age of the WLA Study and WLA Order that the limits in the WLA Order are invalid. No credible evidence was submitted to establish that there is less assimilative capacity for oxygen demanding pollutants in the Lower Winooski River today than when the WLA Order was approved or that other factors have changed over time to invalidate the conclusions in the WLA Order.<sup>3</sup>

CLF also argues that the UOD limit in the Discharge Permit violates the WLA Order. The WLA Order allocates 1460 lbs. UOD/day to the Airport Parkway WWTF and 600 lbs. UOD/day to the Colchester #1 WWTF. The Discharge Permit combines these allocations by allowing the Airport Parkway WWTF to discharge 2060 lbs. UOD/day. ANR testified that combining the allocations for the Colchester #1 and Airport Parkway WWTF will have no adverse effect on water quality.

The allocations were combined as a result of an agreement between the Applicant and the Town of Colchester. Pursuant to the agreement, the Town has ceased operation of the Colchester #1 facility and provided its allocation under the WLA Order to the Applicant. As CLF correctly points out, the WLA Order has never been amended to recognize this agreement.

CLF contends that it is unlawful to “reallocate” the wasteload from the Colchester #1 facility to the Airport Parkway WWTF under ANR’s Administrative Rule 87-46 (Wasteload Allocation Process) (1987). In support of its argument, CLF points to language in the Wasteload Allocation Process regarding suballocation. Administrative Rule 87-46 states that the suballocation of the assimilative capacity by one discharger to another existing discharger is not allowed unless the Secretary reallocates the assimilative capacity through the Wasteload Allocation Process. Administrative Rule 87-46, Development and Adoption of Wasteload Allocation, Section 11. Suballocation is defined as “the redistribution of a discharger’s wasteload allocation by that discharger to another discharger” (*Administrative Rule 87-46, Definitions*).

The Board disagrees with CLF’s interpretation of Administrative Rule 87-46. While the physical location of Colchester’s discharge may have changed, the Town has not “redistributed” its discharge to the City. Rather, the Town continues to utilize the discharge and its associated UOD allocation. Colchester is a co-permittee under the permit, and is bound by the terms and conditions thereof. ANR testified that no significant environmental impacts are expected to occur as a result of the shift of Colchester’s discharge downstream. Accordingly, the Board finds that the permit

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<sup>3</sup> Because the Board concludes that the limits for UOD in the Discharge Permit will assure compliance with the VWQS, the Board does not address the legal issue of whether CLF may collaterally attack the final approved WLA Order.

properly includes the combined UOD limit for the City (1460) and the Town (600), totaling 2060 lbs./day.<sup>4</sup>

With regard to specific limits for BOD and TSS in the Discharge Permit, the Board concludes that the TBELs in the Discharge Permit issued by ANR are consistent with state and federal law and should not be altered.

### *Ammonia*

There is no dispute that Ammonia is a potential concern with regard to impacts on water quality because Ammonia has the ability to create oxygen demand and deplete in-stream oxygen levels and because ammonia discharges involves toxic concentration levels. CLF contends that the Discharge Permit is defective because it does not contain an express effluent limit for ammonia, and that there is a reasonable potential for the discharge of ammonia to cause a violation of the VWQS.

The VWQS state, in pertinent part:

In rivers, streams, brooks, creeks, and riverine impoundments, the aquatic biota based toxic pollutant criteria that prevent acute and chronic toxicity listed in Appendix C shall be applied at 7Q10 flows . . .

### Section 3-01(B)(10)(c)

Under Appendix C of the VWQS, the applicable ammonia standards are contained in the 1999 Update of Ambient Water Quality Criteria for Ammonia. CLF's analysis fails to apply the criteria at 7Q10 flows, as required by the VWQS to the discharge of ammonia from the Airport Parkway WWTF. The instream ammonia criteria in the Winooski River, applying the correct river pH (7.8) and temperature (22 degrees Celsius), is approximately 1.96 mg/l, chronic and 8.11 mg/l, acute.

To correctly determine the proper ammonia effluent concentration in a discharge, the volume of the discharge (2.3 MGD monthly average) must be considered and the 7Q10 flow (167 cfs) must be applied. Applying these factors

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<sup>4</sup> While the Board agrees with ANR's and the City's arguments, the Board cautions ANR not to interpret the Board's decision as broad authorization to liberally combine and redistribute allocations set forth in the WLA Order. No evidence was presented in this appeal from which the Board could conclude that combining the loads allocated to City and Town would have an adverse affect on water quality and the Board found in this case that because the Town is still using its allocation, assigning the Town's load to the City does not constitute a suballocation under of Administrative Rule 87-46. However, the Board recognizes the importance of public process when changes that may affect public resources are made and encourages ANR to err on the side of more public process by requiring an amendment to the WLA Order when addressing future requests to combine or reassign loads.

results in an instream waste concentration of 2.1%. In addition, monitoring data collected from other similar secondary wastewater treatment facilities, using comparable treatment processes, indicates that summer ammonia effluent concentrations are typically 1 to 5 mg/l.

Given this level of dilution, and ANR's experience with summer ammonia concentrations from similarly situated facilities, the Board concludes that ammonia discharged from the Airport Parkway WWTF at concentrations of 1 to 5 mg/l will be well within the ammonia criteria of the Lower Winooski River (approximately 1.96 mg/l, chronic and 8.11 mg/l, acute. Moreover, the evidence in the record indicates that by including a UOD limit in the permit, the Agency has indirectly but effectively imposed a limit on ammonia, which is a component of TKN. For these reasons the Board concludes that the discharge does not have the reasonable potential to cause a violation of the VWQS.

#### *Monitoring*

- (iii) Can the ANR issue a permit whose monitoring conditions are not sufficient to determine compliance with conditions of the permit?

CLF has challenged the monitoring conditions in the Discharge Permit for Whole Effluent Toxicity (WET) Testing and Calculation of Removal Efficiency. Each Issued is addressed separately below.

#### *WET Testing*

CLF contends that the Airport Parkway WWTF is subject to quarterly WET testing based on federal regulations and cites to 40 CFR 122.21 (j)(5)(iv). However, this regulation is only applicable for permit *applications*, not permit *conditions* which are set by ANR. Pursuant to 40 CFR 122.21 (j)(5)(iv):

Each applicant required to perform whole effluent toxicity testing pursuant to paragraph (j)(5)(ii) of this section must provide:

(A) Results of a minimum of four quarterly tests for a year, from the year preceding the permit application; or

(B) Results from four tests performed at least annually in the four and one half year period prior to the application, provided the results show no appreciable toxicity using a safety factor determined by the permitting authority.

Accordingly, there is no requirement that quarterly WET tests be required as a condition of the Discharge Permit. Rather, the federal rules provide that an applicant **may be required to perform four WET tests in the last year prior to permit renewal.**

In addition, the VWQS § 3-01 (B)(10) and Appendix C provide standards for which discharge of toxic substances will be regulated. In instances where specific standards are not referenced, VWQS § 3-01 (B)(10)(c) refers to the Vermont Toxic Discharge Control Strategy (VTDCS) as a means of establishing a procedural basis for determining such standards.

Under 40 CFR 122.44(d) and the VTDCS § B-1, if ANR determines that there will not be a violation of the VWQS for toxics, no further WET testing is required. ANR, based on WET testing of the WWTF over the past decade, has determined that there is no reasonable potential for the discharge from the Airport Parkway WWTF to cause or contribute to violations of the VWQS for toxics. Additionally, the VTDCS provides for a conformational WET test at the time of permit renewal. ANR has complied with this provision by including conformational WET testing at the time of permit renewal via the following condition:

A Whole Effluent Toxicity test shall be conducted between August 1 and September 30, 2003 and the results submitted to the Department by December 31, 2003. . . . (3) Based upon the results of these tests . . . this permit may be amended to include additional Whole Effluent Toxicity testing, establish a Whole Effluent Toxicity limitation, or require that a Toxicity Reduction Evaluation be conducted

Condition E, pg. 4 of the Discharge Permit.

Upon a finding by ANR that the discharge will not cause or contribute to a violation of the VWQS for toxics and pursuant to the VTDCS, ANR has properly included conditions in the permit to ensure the imposition of additional WET testing if the nature of the permit changes in the future and upon renewal. Accordingly, the limits and conditions imposed by the Discharge Permit concerning WET testing stand as written.

#### *Calculation of Removal Efficiency*

CLF argues that more frequent influent monitoring should be conducted at the Airport Parkway WWTF to determine that the percent removal shall not be less than 85%. 40 CFR ' 133.102(a)(3). To calculate the percent removal, the concentrations of BOD and TSS in a facility's influent is compared to its effluent. Eighty-five percent of the BOD and TSS must be removed to meet this technological standard.

ANR typically requires that one influent sample be compared to weekly effluent samples to make this determination. While CLF argues that more frequent influent sampling would provide more information about a given facility's average monthly performance, the Airport Parkway WWTF is in no jeopardy of failing to meet the percent removal standard. In fact, there are only two ways in which the Airport Parkway WWTF would possibly reach this point, both of which demonstrate that there is no need to adjust the conditions in the Discharge Permit regarding influent monitoring in accordance with CLF's recommendations.

First, if the Airport Parkway WWTF for some reason starting receiving cleaner influent, its ability to remove 85% might become more difficult, since it is harder to remove pollution that is not present in the influent. Conversely, as the Airport Parkway WWTF influent becomes more highly concentrated with pollutants, its percent removal efficiency will increase. Currently, the Airport Parkway WWTF consistently achieves more than 90% removal efficiency. Accordingly, there is no indication that the monitoring conditions should be adjusted to address CLF's concern.

Second, if the Airport Parkway WWTF was receiving influent at a rate of flow that far exceeded its design flow capacity, the actual physical plant might not be able to cope with this high flow and, therefore, might have difficulty meeting its percent removal requirement. This too is not a concern because the Airport Parkway WWTF is operating at approximately 65% of its design flow.

In summary, while more sampling might give a slightly more representative picture of percent removal efficiency, the reasons for requiring a change in sampling are not present at the Airport Parkway WWTF. The Airport Parkway WWTF has and will continue to meet this standard and in all likelihood will actually achieve higher removal efficiencies as the influent it receives becomes more concentrated. The Board therefore sees no need at this time to modify the monitoring requirements for the Airport Parkway WWTF's influent concentrations of BOD and TSS.

## V. Order

1. Based on the Findings of Fact and Conclusions of Law set forth above, NPDES Discharge Permit #3-1278 is issued with the following amendments to Special Conditions, Section A. Effluent Limits of the Discharge Permit:

**An *annual* phosphorous load limit of 4,201 pounds (or 1.906 metric tons) is established for the discharge. All other conditions of the Discharge Permit issued by ANR are retained.**

2. Jurisdiction is returned to ANR.

Dated at Montpelier, Vermont on this 29<sup>th</sup> day of December, 2003.

WATER RESOURCES BOARD

/s/David J. Blythe  
David J. Blythe, Chair

Concurring:

Lawrence H. Bruce, Jr., Member  
Jane Potvin, Member  
John D.E. Roberts, Vice Chair  
Michael J. Hebert, Member