UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

April 30, 2008

Laura Pelosi, Commissioner
Department of Environmental Conservation (VTDEC)
103 South Main Street
Waterbury, VT 05671-0405

Dear Commissioner Pelosi:

Thank you for meeting with my staff at your office in March to discuss water quality issues relating to Lake Champlain and Long Island Sound, as well as wastewater permitting concerns. This letter details a number of specific items discussed at that meeting that EPA would like to follow up on.

General Lake Champlain Water Quality Issues

We recognize that sources other than wastewater treatment plants dominate the current phosphorus loadings to Lake Champlain. While loadings from these plants, particularly publicly owned treatment plants, have been reduced, there appears to be not enough progress in reducing loads from other sources, such as agricultural nonpoint sources and urban stormwater runoff. We concur with VTDEC's assessment, as expressed at the meeting, that restoring Lake Champlain will not be possible without successfully addressing agricultural and urbanized nonpoint sources of phosphorus. Still, we remain concerned about the lack of progress toward seeing water quality improvements in most lake segments, as well as the large measured tributary loads entering the lake even after almost six years of TMDL implementation.

We recognize that Vermont has developed many good programs to implement the TMDL. These include river restoration through geomorphic assessment, development and growth of the state stormwater program, the Watershed Initiative, the appropriation of state funding for agricultural BMP work, the overall Clean and Clear program, both in its original and newly revamped form, and the extensive point source reductions accomplished both before 1996, and those after approval of the TMDL. However, this work has not reduced enough phosphorus to meet the load reduction requirements of the TMDL.

We understand that the State is developing a detailed plan for implementation of nonpoint source and stormwater controls. As EPA noted in an April 10, 2008 letter to Senator Lyons on this subject, we would be happy to provide support that might be helpful to VTDEC in developing this plan. The plan should be sub-basin specific and include specific quantitative milestones that can be tracked. The plan should also identify funding needs and funding sources to achieve these specific milestones, and a compliance and enforcement component. Further, this plan should incorporate elements of the

phosphorus accounting system described in the recent independent audit of the State's Clean and Clear Program. Additionally, it should take into account the recent increases in the percentage of urban and developed land uses in the basin, and the additional phosphorus loads associated with this changing landscape. We would welcome the opportunity to review and comment on the plan.

Agricultural sources of phosphorus are a significant contributor to the Lake Champlain nutrient loads. We understand VTDEC and other partners have invested considerable time and resources to reducing these loads. Improving the targeting of funds for BMP implementation is critical to making progress in reducing phosphorus contributions from agricultural sources. EPA believes that a targeting tool that incorporates the Vermont Phosphorus Index and runoff contributing area data (such as the DISPLA model) should be developed and applied basin-wide to guide both state and federal cost-share programs. The use of such a tool will allow limited funds to achieve the greatest possible reduction in phosphorus. If completion of the targeting tool is not funded from another source of funds, we request that Vermont utilize CWA § 319 base funds to complete this project.

An equally important contributor of phosphorus to Lake Champlain is stormwater from urbanized areas. The State should complete several steps relative to urbanized stormwater management as expeditiously as possible. First, the State must complete and submit to EPA TMDLs for the twelve stormwater impaired streams lacking approved TMDLs, as VTDEC committed to doing in the 2006 Performance Partnership Agreement (PPA) and then again in the PPA for 2007. We know VTDEC is working on these and that four went out for public notice this month. Second, the State should move quickly to draft watershed stormwater permits to implement the TMDLs (starting with those TMDLs already approved) using the Decision Support System tool developed for this purpose and input from the stormwater advisory group (SWAG). Third, VTDEC should aggressively promote greater use of Low Impact Development (LID) practices for new development, redevelopment, and retrofit projects. The Vermont stormwater manual should be revised to give greater emphasis to these practices and identify them as the preferred way (where feasible) to meet the state stormwater requirements. In addition, Vermont's regulations and guidance on infiltration practices and groundwater should be revised as needed to ensure that all relevant Vermont regulatory programs are consistently supportive of properly designed and sited LID practices such as rain gardens and porous pavement. Fourth, VTDEC should move expeditiously to revise and reissue the Small Municipal Separate Storm Sewer System (MS4) NPDES permit which expired on March 18, 2008. The reissued permit should include greater specificity in the illicit discharge detection and elimination program. The permit should also include provisions to ensure that new development does not add to the stormwater problem. For example, the permit could include a requirement that predevelopment infiltration and hydrology be preserved post development. We also recommend a provision requiring permittees to develop a phased LID retrofit program consistent with the State's stormwater permit requirements and applicable TMDLs that would significantly reduce nutrient loads. We would be happy to share our thoughts about appropriate provisions, similar to what we are considering in the context of the small MS4 permit that EPA will be proposing soon in Massachusetts and New Hampshire. We would also be interested in sharing with you

our information regarding a proposed program in Massachusetts that would require infiltration from large impervious areas on a statewide basis.

As part of the Lake Champlain TMDL, EPA approved wasteload allocations for waste water treatment plants ("WWTPs") which were less stringent than would otherwise be required, based on assurances provided in the TMDL that the phosphorus loads from nonpoint sources and non-NPDES regulated point sources would be controlled. If net loads from such sources are not substantially reduced over time, EPA may be compelled to require that Lake Champlain be put back on the Clean Water Act ("CWA") § 303(d) list of waters not achieving standards and a new TMDL be prepared. Such an action could result in more stringent limits being required in future permits for WWTPs that discharge to the Lake Champlain basin.

St. Albans Permit Issues

We have additional concerns specific to St. Albans Bay. The TMDL for that segment did not require reductions in the overall "external" phosphorus loadings compared to baseline levels, based on the assumption that the "internal" sediment source of phosphorus would reduce significantly over time, given that the WWTP load to this area was reduced in the 1980s. However, given the lack of change in ambient water quality in this embayment, either reductions from internal cycling have not happened to the extent expected, or external nonpoint source loads are greater than expected. If, as currently suspected, these external loads have been relatively constant over the past decade, then the reductions from internal cycling have not happened to the extent expected. Therefore, the TMDL for this segment was based on assumptions that have proven incorrect.

In this circumstance, EPA believes that when the permit for the St. Albans City's WWTP is reissued, the phosphorus limit should not be based on the wasteload allocation in the TMDL, which is 35% of the total allocation for St. Albans Bay. Rather, a limit should be set at the level that will ensure that the discharge will not cause or contribute to an exceedence of water quality standards, in accordance with 40 CFR § 122.44(d) (see further discussion of § 122.44(d) requirements below). The current permit limit (0.5 mg/l) is approximately 30 times the in-lake criterion of 0.017 mg/l for the Bay, and phosphorus discharged at this concentration would contribute to the impairment. Pursuant to Article II section (3) of the 1974 NPDES Delegation Agreement, please notify us of any changes made to the public noticed version of the St. Albans permit. We also believe it is important to work aggressively to control all the other sources of phosphorus, including urban stormwater and agricultural sources, to the St. Alban's Bay watershed.

Chemical treatment of the sediments in St. Albans Bay should only be considered a measure of last resort. In accordance with 40 CFR § 125.3(f), "non-treatment" techniques can be considered as a method of achieving water quality standards on a case-by-case basis when it can be demonstrated "that such a technique is the preferred environmental and economic method to achieve the standards after consideration of alternatives such as advanced waste treatment...." The temporary nature of chemical treatment makes such treatment a poor choice when, as here, the external sources are still

ongoing and significant. In addition, given the potential adverse impacts to the fish and benthic communities associated with the use of chemicals, this is unlikely to be the preferred environmental method for achieving standards. Further, such a treatment may require an Environmental Impact Statement under NEPA.

Phosphorus Reduction Technology Issues

As future TMDL and implementation decisions are made, we think it is important for VTDEC and stakeholders to be aware that phosphorus treatment technologies for WWTPs have improved significantly in recent years. Further, these technologies may be available to communities at lower cost than estimated in the Vermont Agency of Natural Resources' January 2008 Clean and Clear report to the legislature. Current treatment technology can achieve at least an 80% reduction over the current permit limit of 0.5 mg/l at a capital cost of approximately $1 million dollars per million gallons per day ("MGD") treated.

Another way to effectively control phosphorus is to limit increased loadings from WWTPs through the encouragement of water conservation. One of the pillars of EPA's sustainability program relative to water conservation is full cost pricing. Full cost pricing promotes conservation and should be pursued by the state in order to help control point source increases. Further, encouragement of stormwater utilities throughout the state should be considered as a means to both reflect the social cost of stormwater impacts, and to generate revenue to help install stormwater best management practices.

General Permitting Issues

A number of general permitting issues were discussed at the meeting. My staff raised significant concerns with the level of information provided in permit fact sheets both at the meeting and in written comments on individual draft permits. VTDEC's fact sheets do not typically provide information on current water quality of the receiving water, current effluent quality, or whether the discharge has a reasonable potential to cause or contribute to water quality standards violations. Meaningful public review of permits is not possible without this information.

Please note this issue was raised with VTDEC in 2002 when EPA Headquarters' Water Permits Division conducted a permit quality review of selected Vermont municipal and industrial permits. The review findings were transmitted to the Region and VTDEC in a November 8, 2002 letter to Marilyn Davis, Director of VTDEC's Wastewater Management Division. The findings identified some potential areas for enhancement of the permits including providing more detailed information in the fact sheets to better justify effluent limitations, as well as modifying standard permit condition language.

Additionally, in 2005, EPA completed an NPDES Permit Integrity Profile. The report was posted on the EPA web site at http://www.epa.gov/npdes/pubs/vermont_final_profile.pdf. The Region's review identified, among other things, the need for additional information in the permit fact sheets. Specifically, the reviews found the fact sheets to be lacking information regarding 7Q10 flow, dilution factors, reasonable potential calculations and

receiving water quality conditions, the absence of which made it difficult to determine whether water quality standards would be attained.

The regulations at 40 CFR §§ 124.8 and 124.56 contain the requirements for fact sheets, which include calculations or other necessary explanations of the derivation of specific effluent limitations. Chapter 11 of EPA's Permit Writers Handbook provides more detailed guidance on preparing fact sheets. In addition, the public notice provisions at 40 CFR § 124.10 require a description of the anticipated environmental effects of activities conducted under the permit and any other information which may assist the public in evaluating the likely impact of the proposed activity upon the integrity of the receiving water.

The regulations at 40 CFR § 122.44(d) require that all effluents be characterized by the permitting authority to determine the need for water quality based effluent limits (WQBELs) in the permit, including a determination of "whether a discharge causes, has the reasonable potential to cause, or contributes to an instream excursion" above any numeric or narrative water quality criteria. A reasonable potential analysis must consider existing controls on point and non-point sources of pollution, the variability of the pollutant in the effluent, and where appropriate, the dilution of the effluent in the receiving water. Chapter 6 of the Permit Writers Handbook provides more detail relative to this requirement, indicating that permit writers must make this determination at each permit reissuance and must develop WQBELs as necessary to control the discharge of pollutants. Additionally, the permit writer must investigate effluents for the presence of specific chemicals for which the State has not adopted numeric criteria, but which may be contributing to an excursion above a narrative criterion.

We recently commented on the Middlebury draft permit and request that VTDEC prepare a new draft permit in response to our comments and re-notice it for public comment. In addition to addressing the lack of information in the fact sheet, VTDEC should reconsider the permit limits in light of the fact that the receiving water, Otter Creek, has high total phosphorus and chlorophyll a levels. The permit cannot just rely on the Lake Champlain TMDL for establishing a phosphorus limit for the lake but must also establish a phosphorus limit that will ensure attainment of standards in Otter Creek.

Long Island Sound Issues

Relative to Long Island Sound, VTDEC's permits for discharges to the Long Island Sound watershed should include total nitrogen monitoring and optimization language, similar to EPA's permits for such discharges in Massachusetts and New Hampshire (see enclosure). Section 402(b)(5) of the CWA requires approved states to ensure that other states with waters that would be affected by a discharge have the opportunity to submit written recommendations to the permitting state and to EPA with respect to a permit application, and if such recommendations are not accepted, the permitting state must notify the affected state and EPA and explain its reasons for failing to accept the recommendations. EPA's implementing regulations at 40 CFR § 123.44(c) provide as one of the grounds for objecting to a state permit, the failure to accept another state's recommendations if the reasons for such failure are not reasonable. Additionally, the

Example Language for Nitrogen Monitoring and Optimization

Within **one year of the effective date of the permit,** the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and **[MassDEP or NHDES]** documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the existing mass discharge loading of total nitrogen. Existing mass loadings will be based on the levels monitored by the facility over the first year of the permit term **[include the previous sentence if the current estimated discharge load in the attached spreadsheet is not based on actual data from this facility].** The annual average total nitrogen load from this facility (2004 – 2005) is estimated to be _____ lbs/day **[include the previous sentence if the current estimated discharge load in the attached spreadsheet is based on actual data from this facility].**

The permittee shall also submit an annual report to EPA and MassDEP, **by February 1 each year,** that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

state program regulations at 40 CFR § 123.25 make § 122.44 applicable to state programs, and § 122.44(d)(1)(vii) states that when developing WQBELs, the permitting authority must ensure compliance with "all applicable water quality standards." Lastly, § 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.

Conclusion

We understand that many of the issues we have outlined in this letter are challenging and may require significant resources. Further, we understand that addressing the phosphorus issues in the Lake Champlain basin may require additional expenditures at the state and municipal levels at a time when funding is tight. However, we hope you share our view that the steps described above must be a part of the next phase of implementation if more substantial progress is to be made.

We look forward to working with you on these issues and we agree that a meeting would be useful as suggested in John Sayles' letter of April 16th to our Regional Administrator. I have asked Roger Janson and Lynne Hamjian to arrange follow-up discussions with your staff. If you would like to discuss any of these matters further, you can contact me, or Roger at (617) 918-1621 or Lynne at (617) 918-1601.

Sincerely,

Stephen S. Perkins, Director
Office of Ecosystem Protection

Enclosure

cc: John Sayles
Julie Moore
Brian Kooiker
Pete LaFlamme