

Lake Champlain Phosphorus TMDL

Response to Public Comments on the April 29, 2002 Draft

Prepared by the Vermont Department of Environmental Conservation

October 10, 2002

The Vermont Department of Environmental Conservation received the following written comments on the April 29, 2002 Draft Lake Champlain Phosphorus TMDL. The comments listed below represent all the major points provided in letters received by the Department as part of the public participation process for the Lake Champlain TMDL. The comments have been edited and paraphrased in some cases for greater clarity and brevity, but every effort was made to preserve the original meaning and context. The comments are grouped by subject area, and the affiliation of the individual making the comment is given after each comment. Department responses follow each comment.

Point Source Wasteload Allocation

Comment: We are glad the aerated lagoon exemption has been changed. We still would ask that the State consider lowering the limit for lagoon facilities from 0.8 mg/l to 0.6 mg/l. [City of Burlington]

Response: The Department's proposal to remove the 0.8 mg/l exemption for aerated lagoon facilities would affect eight municipal facilities. Three of those facilities (Swanton, Vergennes, Alburg) have permit limits of 1.0 mg/l as a monthly average. These three facilities currently have the capability of achieving 0.6 mg/l on an annual basis at minimal additional costs, and therefore are included in the Department's proposal to establish an annual load limit based on 0.6 mg/l.

The five remaining aerated lagoon facilities currently have no phosphorus removal capability. The Department's proposal to require phosphorus removal to 0.8 mg/l at these facilities is based on a cost-effective technology employing in-lagoon addition of phosphorus precipitating chemicals. Operating data for facilities employing this technology indicate that a 0.8 mg/l limit is practically achievable. However, the data do not support the consistent attainment of a 0.6 mg/l based limit using this technology at these lagoon facilities, particularly as flows increase and approach design capacity.

Comment: If the State does not support the 0.6 mg/l limit for all municipal facilities as Burlington does, then we would ask that the State consider lower effluent limits for those 13 facilities that are not affected by the 0.8 mg/l or 0.6 mg/l phosphorus limits currently proposed in the TMDL. [City of Burlington]

Response: See response to the comment below.

Comment: We are in favor of the wasteload allocation alternatives proposed in the draft TMDL (#2 and #5 from the June 22, 2001 draft), but we also believe that allowing 13 wastewater plants to go unpermitted for phosphorus is morally and ethically wrong. We question whether the costs to implement these plants with phosphorus removal would be as high as estimated. [City of Winooski]

Response: The 13 facilities not affected by the 0.8 mg/l or 0.6 mg/l phosphorus limits in the TMDL are facilities with design flows less than 0.200 mgd that are currently exempted from the 0.8 mg/l statutory requirement. This exemption was adopted by the legislature in 1991 and was the culmination of a 1989 legislative directive (Section 4, Act 88, Vermont SLA 1989) which required the Agency of Natural Resources to develop a phosphorus reduction plan, taking into account the costs of achieving the goals of the plan. The Agency's 1990 "Phosphorus Reduction Plan" recommended the exemption for facilities smaller than 0.200 mgd for reasons of poor cost-effectiveness and high annual user fees.

Since 1990, it has been the experience of the Department that, although capital and operating costs of phosphorus removal do decrease with treatment facility size, they do not decrease as rapidly as facility size and sewer user base, meaning that the users of the smallest facilities would face disproportionately high operating costs associated with phosphorus removal, at relatively low benefit in terms of phosphorus reduction.

Many recent phosphorus removal projects have required building additions. Pre-existing buildings typically lacked space for year-round storage of the chemicals used in phosphorus removal. The sizing of such additions is significantly affected by the storage volume requirements for those chemicals. Storage tank sizing, in turn, is affected by truck delivery volumes and pricing considerations. Delivered chemical prices tend to drop as delivery volume increases, and permittees receive no state or federal assistance for treatment facility operating costs.

The Department conducted additional cost analyses to evaluate the various phosphorus removal policies presented in the June 22, 2001 draft Lake Champlain Phosphorus TMDL. The results of the cost analysis were presented in a "Summary of Changes" to the Vermont portion of the TMDL since the June 22, 2001 draft (available at <http://www.vtwaterquality.org/lakesTMDL.htm>). The cost analysis indicated that requiring phosphorus removal to 0.8 mg/l at these small facilities would entail a very high cost per allocated ton of phosphorus reduced (\$1,278,107 per metric ton reduced annually). This 20-year total cost per ton reduced is several times higher than the cost of the alternatives recommended in the draft TMDL. Furthermore, the average annual sewer user cost increase at these small facilities would be about \$105 per user per year (more in some towns), which is much higher than the user impact that results from phosphorus removal in the larger municipalities. For these reasons, the Department continues to believe that phosphorus removal requirements at these small facilities cannot be justified from a cost-effectiveness standpoint.

Comment: Rock-Tenn has received a wasteload allocation in the TMDL that would require dramatic reductions in its permitted discharge quantity of 3.5 mgd down to 1.0 mgd. Imposing a 1.0 mgd limit might make it extremely difficult for the mill to produce new grades of paper in the future, or to

otherwise expand, and thus may call into question the mill's ultimate survival. We suggest that a more appropriate action is to hold the mill's permitted discharge at its current level, and to implement the numerous measures for nonpoint sources included in the implementation plan. [Rock-Tenn Company and American Forest and Paper Association]

Response: The draft TMDL did not propose to reduce the allowable flow discharged by the Rock-Tenn facility below the currently permitted rate of 3.5 mgd. Instead, the TMDL proposed that the annual phosphorus mass loading limit for Rock-Tenn be calculated using a flow of 1.0 mgd at a 0.6 mg/l effluent phosphorus concentration (i.e., 0.829 mt/yr). A reduced flow of 1.0 mgd was used for this calculation purpose because the Department considered the currently permitted annual phosphorus load of 3.478 mt/yr (based approximately on a flow of 3.5 mgd at a 0.8 mg/l concentration) to be in excess of the reasonable needs of the company, given that the actual flows from the plant in recent years have been far below 3.5 mgd. However, the proposal to use 1.0 mgd as a basis for calculating the mass loading limit was somewhat arbitrary, and subsequent discussions between the Rock-Tenn Co. and the Department indicated that an annual mass loading limit of 1.26 mt/yr would preserve the flexibility to change papermaking processes in the future while still reducing the allowable phosphorus discharge substantially below currently permitted levels. A mass loading limit of 1.26 mt/yr is equivalent to a 1.52 mgd discharge at the 0.6 mg/l concentration used in the TMDL to calculate annual loading limits for other major Vermont wastewater treatment facilities. The revised wasteload allocation of 1.26 mt/yr for the Rock-Tenn Co. has been incorporated into the TMDL. The Rock-Tenn facility will continue to be required to attain the statutory 0.8 mg/l monthly average phosphorus concentration limit, regardless of the actual discharge flow, while meeting the annual mass loading limit of 1.26 mt/yr.

Comment: Three major industries discharge high phosphorus waste to the Middlebury Treatment Facility at unscheduled times. Imposition of the lower limits proposed in the TMDL will force construction of pre-treatment and/or equalization facilities in Middlebury. Therefore, we urge the State of Vermont to provide adequate capital funding to enable Middlebury to construct an equalization basin or larger wet well at our main pump station. This will make the phosphorus objective attainable. [Town of Middlebury]

Response: The Department has previously evaluated the need for equalization and/or pretreatment in conjunction with re-authorization of pretreatment discharge permits for the three industries in question and has concluded that equalization and/or additional pretreatment was not necessary as long as the industries remain in compliance with their respective permits. The Department did conclude and did insist that the Town of Middlebury make corrections to the existing wastewater treatment facility such that it would operate as originally designed and meet existing phosphorus limits.

Comment: The Troy-Jay Wastewater Treatment Plant is operating at only 15% of its design flow capacity because of the closure of the Agri-Mark Plant in 1996 and delays in the Jay Peak Resort expansion project. The 0.8 mg/l effluent phosphorus limit proposed in the TMDL for the Troy-Jay facility will cause increased operational and maintenance costs that will be difficult to fund with our

reduced operating budget. It is the hope of this Board that real consideration will be made for our complicated situation. [Troy-Jay Board of Sewer Commissioners]

Response: The Department has evaluated the increased operational costs due to proposed phosphorus removal at the Troy-Jay facility. The Department estimated that increased operational costs for phosphorus removal at current flows (15% of design flows) would be approximately \$3,000 per year, which would increase the annual budget for the Troy-Jay Wastewater Treatment Facility from \$68,500 to \$71,500. We understand the current annual sewer use fee is approximately \$225 per year, and the additional operational costs for phosphorus removal would increase the annual sewer use fee by approximately \$10-20 per year. The resulting annual sewer use fee would still be well below the average annual sewer use fee for Vermont wastewater treatment facilities of \$347 (based on Vermont DEC 2001 Wastewater Survey results). Based on this evaluation, the Department concludes that the increased costs for the Troy-Jay plant are not inordinately high compared to other facilities, and therefore excluding the Troy-Jay facility from the requirement to remove phosphorus is not warranted.

Comment: The TMDL should provide a table showing actual point source loads, in addition to the allocated loads. Looking at actual point source loadings would show that the nonpoint sources contribute even more to the lake than the TMDL indicates. [City of Winooski]

Response: Estimates of the actual phosphorus loads discharged by each Vermont wastewater treatment facility during 2001 have been included in the TMDL for comparison.

Comment: We appreciate the efforts in the new draft TMDL to address the imbalance of efforts directed at point source vs. nonpoint source loads. We continue to believe, however, that the TMDL is depending on point source reductions in amounts disproportionate to their contributions because it is easy to measure outputs at those facilities. We continue to believe that the Department must aggressively pursue reductions in phosphorus from nonpoint sources in addition to, or even before, considering further modifications to municipal treatment facilities. [Vermont League of Cities and Towns]

Response: We agree that nonpoint sources are the major area where future efforts are needed to reduce phosphorus loading to Lake Champlain. This belief is reflected in the Vermont Implementation Plan section of the TMDL, which lists a large number of action items needed to control nonpoint sources, and identifies funding needs that are vastly dominated by nonpoint source control efforts.

Comment: Whichever combination of alternatives is considered, all treatment facilities and not just municipal facilities must be included. [Vermont League of Cities and Towns]

Response: The phosphorus removal policies specified in the TMDL apply to all Vermont wastewater treatment facilities in the basin, including both municipal and industrial treatment plants, and state-owned facilities such as fish hatcheries.

Comment: Should permitted phosphorus loads be reduced to less than 0.8 mg/l, the State must continue its commitment to fund 100% of the capital costs. [Vermont League of Cities and Towns]

Response: The TMDL recommends that eligibility of municipalities for 100% state grant funding for the capital cost of phosphorus removal facilities should be extended to include all modifications necessary to meet the wasteload allocations in the TMDL. This funding decision is ultimately subject to approval by the Vermont Legislature.

Population Growth Analysis

Comment: We urge the Department to use 2000 census figures for the population growth analysis instead of Department of Health estimates for 1998. The population growth analysis should provide flexibility so that if there is development in downtowns and thickly settled areas, as the entire state government is encouraging, it will be accommodated in the TMDL. [Vermont League of Cities and Towns]

Response: See response to comment below.

Comment: Population growth is not linear, as assumed in the draft TMDL, and a different basis for predicting population growth should be used. [Conservation Law Foundation]

Response: See response to comment below.

Comment: We question whether the State should be comfortable basing its growth projections on linear, town-level population projections. These projections do not capture non-residential development, local policies such as housing limits or affordable housing efforts, or inter-town wastewater capacity agreements. A review of local or regional planning commission estimates of population and housing, inter-municipal agreements, local development projections, and wastewater connection policies would provide a more realistic basis for these statements. [City of South Burlington]

Response: The section on “Population Growth Analysis” in the April 29, 2001 draft TMDL has been revised because of these concerns. The linear population projections based on Vermont Department of Health estimates for 1998 were removed from the TMDL. However, future population projections based on the 2000 U.S. Census are not yet available on a town-by town basis from the Vermont Department of Health or other sources. Instead, county-level population growth rates between 1990 and 2000 are presented in the TMDL for comparison with the wastewater growth capacity allowed in the discharge permits and the TMDL wasteload allocations.

The revised section, retitled “Growth in Wastewater Loads,” compares the permitted wastewater flows and phosphorus wasteload allocations with the current (2001) discharge rates. Allowances within the TMDL for growth in wastewater flows and phosphorus loads substantially exceed

anticipated population growth rates. A town-by town review of planning commission estimates of population and housing, inter-municipal agreements, local development projections, and wastewater connection policies throughout the Lake Champlain Basin is beyond the scope of what can be practically accomplished in developing the TMDL, and does not seem warranted given the substantial growth capacity built into the TMDL wasteload allocations (see further response to comment below).

Comment: As a municipality planning a significant new growth center, we are uncomfortable with the statement in the TMDL that there appears to be room within the total wasteload allowances for a reallocation of the permitted phosphorus loads to accommodate a local economic development. Was a scenario like the arrival of a new employer with flows comparable to Husky Injection Moldings evaluated to see if this conclusion was realistic? The point/point phosphorus trading discussion does not give the City any reassurance that trading will be a realistic option. If the upshot of the TMDL is that operational adjustments will be required to increase capacity beyond the flows and limits anticipated in the TMDL, the document should say so. [City of South Burlington]

Response: Predicting where large new industries with significant phosphorus discharges will locate in Vermont in the future would be extremely difficult. Every city and town in the Vermont portion of the Lake Champlain Basin had the opportunity to review and comment on two drafts of the Lake Champlain Phosphorus TMDL. No comments were received from any municipality indicating a specific additional amount of wastewater capacity needed to accommodate a new industry planning to locate in their town. Making individual allowances within the wasteload allocations for every town where such an industry could potentially locate would result in an unacceptably large total wasteload allocation for point sources within the TMDL. The nonpoint source load allocations would need to be reduced to compensate because the total loading capacity of the lake is finite. The nonpoint source reductions specified in the April 29, 2002 draft TMDL will be difficult enough to achieve, as noted in many other public comments including those from the City of South Burlington. Shifting additional phosphorus reduction burden to nonpoint sources to make room for speculative future point sources would not be wise.

Operational adjustments that reduce effluent phosphorus concentrations are only one way a municipality could accommodate a new industry within its wasteload allocation. The TMDL notes that phosphorus trading between two point sources is a second option. The fact that the current (2001) total phosphorus discharge of 33.5 mt/yr from Vermont point sources could increase by 22.3 mt/yr before the total TMDL wasteload allocation of 55.8 mt/yr is reached indicates that there are substantial unused allocations of phosphorus that could be available for trade.

Comment: Population growth is not an adequate surrogate for growth in phosphorus loading in the watershed, which is affected by land use conversion. The TMDL should be substantially revised to include an estimation of projected future growth in phosphorus loading based on factors other than just population growth and wastewater treatment plant loading. [Conservation Law Foundation]

Response: The population growth analysis was not used in the April 29, 2002 draft TMDL to predict growth in watershed nonpoint source phosphorus loads, which are affected by many factors in addition to population growth. The population growth analysis was used for the narrower purpose of assessing whether the TMDL should include an additional amount of wasteload allocation to accommodate future growth in wastewater discharges. The conclusion was that no such reserve allocation was necessary for wastewater discharges. This section of the TMDL has been revised (see above) but the same conclusion remained.

The Lake Champlain Basin Program made some initial attempts in a June 2000 report to project increases in phosphorus loading resulting from land use conversion. This effort was severely limited by lack of recent land use data coverage for the basin, and other difficulties inherent in predicting future land use changes. Substantial revisions to the TMDL to include an estimation of projected future growth in phosphorus loading might provide some worthwhile perspectives on the magnitude of the growth pressures that could affect future phosphorus loading sources, but this major effort would have little practical effect on the TMDL implementation plan. The TMDL implementation plan already calls for universal implementation of a comprehensive list of phosphorus control action items. Implementation of these actions at all sites where they are applicable is justified for a variety of reasons, including the need to offset future growth in phosphorus loads. There is no justification for delaying completion and implementation of the TMDL until better future phosphorus loading projections are available.

Nonpoint Source Load Allocation

Comment: The TMDL should include a discussion of how new growth and development will be accommodated in the nonpoint source allocation. [City of South Burlington]

Response: A section titled “Offsetting New Growth and Development” was added to the TMDL to explain how universal implementation of nonpoint source control actions is intended to offset the effects of growth and land use conversion.

Comment: The nonpoint source reductions indicated in Tables 8 and 10 of the draft TMDL need explanations of the source of the reductions. Any reliance on projected effectiveness of nonpoint source practices must document the methodology used to predict effectiveness, the uncertainty in such predictions, and the actual status of implementation. [Conservation Law Foundation]

Response: The means to be used to obtain the necessary nonpoint source reductions are explained throughout the “Implementation Plan” section of the TMDL. Public comments on the draft TMDL provided few suggestions for additional nonpoint source control practices that might be necessary, which suggests that the practices currently included in the TMDL implementation plan represent a reasonably comprehensive list. Data on the quantitative effectiveness and the status of implementation simply do not exist for many of the nonpoint source practices. As explained in the “Level of Implementation Required” section of the TMDL, the Department will pursue full implementation of all action items listed in the Implementation Plan section of the

document, coupled with a monitoring program to determine when loading targets are achieved and to redirect implementation programs if necessary.

Margin of Safety

Comment: The margin of safety in the TMDL is insufficient to meet the requirements of the Federal Clean Water Act. Given the magnitude of the undertaking presented in conducting the draft TMDL, common sense indicates that the projected load reductions and predicted results are subject to massive scientific uncertainty. The draft TMDL should be modified to include a substantial allocation of loading for an adequate margin of safety. We recommend that 50% of the nonpoint load to each lake segment be allocated to the margin of safety. [Conservation Law Foundation]

Response: Allocating 50% of the existing (1991) nonpoint source load in each watershed to the margin of safety is not a carefully considered or practical recommendation. For example, the 1991 load to Missisquoi Bay from Vermont nonpoint sources was 94.2 mt/yr, and the nonpoint source load allocation in the draft TMDL was 54.1 mt/y. If 50% of the 1991 nonpoint source load (47.1 mt/yr) was assigned to a margin of safety, only 7.0 mt/yr would remain for the load allocation. Reducing the nonpoint source load to Missisquoi Bay from 94.2 mt/yr down to 7.0 mt/yr (93% reduction) is not a realistic possibility, given that the natural background load to Missisquoi Bay was probably greater than 7.0 mt/yr. In four other lake segment watersheds, the required nonpoint source load reductions exceed 50% of the 1991 nonpoint load. Reserving 50% of the 1991 nonpoint load as a margin of safety would result in negative load allocations for these watersheds, which would be even more difficult to achieve.

The margin of safety section of the TMDL document has been re-written to clarify how an implicit margin of safety is provided by conservative assumptions and procedures used in the modeling analysis, and to explain how additional factors add confidence that the overall goals of the TMDL will be met. We believe that the margin of safety provided by these considerations is adequate and appropriate for the Lake Champlain Phosphorus TMDL.

Implementation Plan - General

Comment: We support the comprehensive nature of the implementation plan included in the TMDL. We do not support including the implementation plan as a component of the TMDL itself. There is no USEPA requirement (only guidance) to include in the TMDL an implementation plan. Including the implementation plan as part of the TMDL submitted to USEPA for approval locks the States into the current requirements of the plan. It will be extremely resource intensive to submit changes to USEPA for approval every time over the next several decades that a change in the plan is required. We suggest instead that the States submit the implementation plans as a separate appendix to the TMDL. [Rock-Tenn Company and American Forest and Paper Association]

Response: After the adoption of a TMDL, wasteload allocations for point sources are implemented by incorporating them into a new permit for the source at renewal time.

Implementation plans for nonpoint pollution and other sources which do not require an NPDES permit are included in the TMDL to provide the public with a clear understanding of how Vermont proposes to achieve water quality standards and meet the load and wasteload allocations set out in the TMDL. However, EPA's current TMDL regulations do not require implementation plans to be submitted for EPA approval as part of the TMDL submission. Recent USEPA guidance on TMDL approval for regional administrators makes clear that TMDL implementation plans are encouraged but not required and are not subject to EPA approval or disapproval.¹

Implementation plans for municipal and industrial waste discharges are not necessary because NPDES permits must be issued consistent with wasteload allocations in the TMDL. However, the Department believes that fairness and the need to inform Vermonters about the actions that will be needed to implement the TMDL require setting forth plans in the TMDL itself for managing other discharges. At the same time, the Department appreciates the wide latitude that Congress and USEPA have given the states to design and change TMDL implementation plans.

The Department believes that municipal and wastewater dischargers have a special interest in seeing that specific and achievable plans are set forth for other dischargers. In the event that TMDL implementation fails to achieve compliance with water quality standards, future revisions to the TMDL could well require tighter limits and additional investment by municipal and industrial waste dischargers.

Comment: We support the call in the TMDL for full implementation of nonpoint source pollution controls and recognize the significant ancillary benefits that will accrue from such an approach. At the scale of the Lake Champlain Basin, determination of specific pollution allocations for nonpoint sources is certainly infeasible, and thus the strategy taken for this TMDL is appropriate. [Lake Champlain Committee]

Response: No response is needed.

Comment: The City disagrees with the statement in the TMDL that all of the recommended actions in the TMDL are supported by simple observation and common sense. These actions should be supported by evaluations for cost-effectiveness, practicality, and consistency with other goals. [City of South Burlington]

Response: The TMDL notes that data on the quantitative effectiveness of many of the nonpoint source control practices are limited. However, we believe that expectations of phosphorus

¹“EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.” (Guidelines for Reviewing TMDLs under Existing Regulations issued in 1992, May 20, 2002, p. 5)

reduction benefits from practices such as agricultural BMPs, stormwater treatment, erosion control, and stream stabilization are well-founded, and that these practices are practical to implement and consistent with other goals. Lack of information on the specific quantities of phosphorus that can be reduced by each practice should not delay or preclude aggressive implementation efforts because there is a compelling need to reduce phosphorus loading to Lake Champlain. The programs and practices described in the TMDL Implementation Plan represent the collective best judgement of the Vermont DEC professional staff about the actions necessary to achieve water quality standards in Lake Champlain.

Comment: Any differences between the TMDL and the Lake Champlain basin plan *Opportunities for Action* should be identified so that there will be a synchronization of activities, resources, and timelines. [Vermont Lake Champlain Citizens Advisory Committee]

Response: We agree, and will work with the Lake Champlain Basin Program to ensure such synchronization.

Comment: The models and phosphorus reduction crediting systems used in the TMDL and the Lake Champlain basin plan *Opportunities for Action* should be updated on a continuing basis. [Vermont Lake Champlain Citizens Advisory Committee]

Response: We agree, and the Department is participating in efforts by the Lake Champlain Basin Program to improve models and phosphorus crediting systems, including field studies evaluating nonpoint source management practice effectiveness.

Comment: We reiterate our call for meeting the target phosphorus loading by 2009, the 400th anniversary of Samuel de Champlain's arrival on the lake. [Lake Champlain Committee]

Response: We support the recommendation in the Lake Champlain basin plan "*Opportunities for Action*" to investigate the actions necessary to achieve the phosphorus load reductions on an expedited schedule. The cost summary and funding schedule presented in the Vermont Implementation Plan section of the TMDL will assist in this process.

River Basin Planning Process

Comment: The discussion of the river basin planning process should identify overriding themes that are applicable to all basins, and these should be incorporated into the programs discussed. Doing so would provide guidance for the basin coordinators and for reviewers of policies they propose. [Lake Champlain Committee]

Response: The TMDL was revised to indicate that the Vermont Watershed Planning Process will be guided by a "*Guidelines for Watershed Planning*" document that will identify certain overriding themes applicable to all basins.

Agricultural Nonpoint Sources

Comment: We would encourage the state water quality agency to work with the Vermont Department of Agriculture and the U.S. Department of Agriculture to target additional funding to address agricultural pollutant contributors in the Missisquoi Bay watershed. [Rock-Tenn Company and American Forest and Paper Association]

Response: We agree that major additional funding is needed to reduce agricultural and other nonpoint sources of phosphorus in the Missisquoi Bay watershed, and will work with appropriate state and federal agencies to address this need.

Comment: It is not clear why the LFO permits should be sufficient substitutes for CAFO permits. More rigorous pursuit of CAFO permitting should be undertaken where appropriate. [Lake Champlain Committee]

Response: Large Farm Operation (LFO) permits are not substitutes for Concentrated Animal Feeding Operation (CAFO) permits. LFO permits are administered by the Vermont Department of Agriculture, Food and Markets under 6 VSA Chapter 215. CAFO permits are administered by the Vermont DEC as a delegated entity under Section 301 of the federal Clean Water Act. The TMDL has been revised to clarify the following points.

The Commissioner of the Vermont Department of Agriculture is required by the LFO law to regulate the construction, operation and/or expansion of farms designed to house greater than 950 animal units or domestic fowl in numbers exceeding the limits in the law. This number of animal units and domestic fowl is established at a level lower than that used for CAFO permitting. The Vermont Department of Agriculture administers the regulatory aspects of the LFO program in accordance with state and federal technical criteria which, when complied with by LFO permit holders, will result in farms not causing direct discharges to waters of the state. The goal is that large farms permitted and regulated under the LFO program are managed in such a manner to not cause a direct discharge.

The federal Clean Water Act defines CAFOs as point sources that are subject to the National Pollutant Discharge Elimination System (NPDES) permit program. CAFOs are not required to obtain an NPDES permit unless there is a discharge. Vermont DEC is charged with NPDES permitting authority. Any NPDES permits issued for CAFOs in Vermont will eliminate and prohibit discharges to waters.

CAFO permitting by Vermont DEC will be undertaken on a case-by-case basis where evidence of a discharge or potential discharge exists. A memorandum of understanding between the Vermont Agency of Natural Resources, the Vermont DEC and the Vermont Department of Agriculture, Food and Markets has been adopted (10/22/99) concerning CAFO and LFO regulation. The memorandum covers matters including sharing of farm information, issuance of

permits, permit compliance and inspection, investigation of complaints, enforcement, and periodic reporting. The TMDL document has been modified to clarify these points.

Comment: We agree that the Accepted Agricultural Practices should be modified and improved. Revisions are needed that incorporate promotion of low phosphorus animal feeds, comprehensive nutrient management plans, conservation tillage, cover crops, and other non-structural practices with proven water quality benefits. [Lake Champlain Committee]

Response: The Vermont Department of Agriculture, Food, and Markets is ultimately responsible for developing and administering any revisions to the AAPs. The AAPs are, and will likely remain, statewide and industry-wide restrictions intended to reduce, but not eliminate, agricultural related pollutants. The AAPs must be technically feasible and cost-effective for farm operators to implement without governmental financial assistance.

The Vermont Department of Agriculture has initiated preliminary discussion on the need for revisions to the AAPs. The TMDL identifies several issues for consideration. Formal revisions to the AAPs, including the potential addition of specific restrictions such as those mentioned in the above comment, will be undertaken using a collaborative, consensus-based process. When the AAP revision process begins, the Vermont Department of Agriculture will notify and seek participation by interested parties and organizations.

Stormwater Discharges

Comment: It would be helpful to have the TMDL support the use of VTrans land such as Interstate Highway cloverleaves and railroad rights-of-ways for nonpoint source treatment. [City of South Burlington]

Response: This is certainly an idea the Department would actively support. However, the TMDL is not an appropriate place to advocate for this approach.

Comment: The TMDL discussion of stormwater discharge permitting and watershed improvement permits indicates that selected stormwater discharges within a watershed will be required to engineer treatment solutions designed to achieve the water quality, recharge, and channel protection requirements of the *Vermont Stormwater Management Manual*. Who is in the top tier of discharges? Which towns would fit this criterion? When will they be told of their status? Within what time frame and at what cost do you anticipate their building these engineered treatment solutions? [Vermont League of Cities and Towns]

Response: These details are specific to each watershed, and will appear in each of the individually crafted Watershed Improvement Permits.

Comment: The Watershed Improvement Permit Program should be expanded to all watersheds in the basin while prioritizing stormwater impaired waters. The permit program must include enforceable,

tangible penalties for dischargers that do not come into compliance with the permits. [Lake Champlain Committee]

Response: The Watershed Improvement Permit Program is only appropriate for those waters directly and predominately impacted by stormwater runoff. The Department has evaluated the list of impaired waters, and determined that 14 small watersheds within the Lake Champlain Basin currently fall into this category. Specific enforcement penalties are decided by the enforcement division on a case-by-case basis.

Erosion Control

Comment: The recommendation in the TMDL that local municipalities should require erosion control measures at small construction sites fails to recognize that few municipalities will have the staff capacity to review or enforce effectively an application. [City of South Burlington]

Response: Most projects do not come under state or federal purview for erosion and sediment control. The importance of local erosion and sediment control review and enforcement, therefore, becomes paramount. Through training and education as provided for in the TMDL, it is hoped that municipalities can draw on this information and incorporate it into local controls.

Comment: The recommendation in the TMDL regarding establishment of a 50 foot vegetated riparian buffer for controlling erosion at construction sites is infeasible and undesirable in most urban areas. The TMDL should *suggest* a 50 foot buffer and explicitly recognize that there are different strategies appropriate to rural, suburban, and urban development patterns. [City of South Burlington]

Response: It is important to recognize that the science of riparian buffers fairly consistently views 50 feet as the absolute minimum riparian buffer width for the various functions and values that these areas provide. Riparian buffers in urban areas are critical to those functions and values. Projects in currently developed riparian areas should seek to maximize buffer width, especially during redevelopment projects. Undeveloped urban areas should strive for at least 50 feet on streams and 100 feet on rivers to preserve the existing functions and values. Nationally, there are numerous examples of riparian buffers and urban growth co-existing to the benefit of all parties involved. The Agency of Natural Resources strongly believes that riparian buffers are the single most effective measure to protect water quality, regardless of development patterns.

Comment: Training of engineers in sediment and erosion control is a key recommendation that should be emphasized in the TMDL. [City of South Burlington]

Response: We agree, and the TMDL does emphasize this need.

Comment: We understand that our state owned and local roadways fall under “developed land nonpoint sources” and that our erosion and sediment control practices during construction and management of stormwater runoff can directly impact water quality in the lake and across the state.

We acknowledge our responsibility to improve erosion and sediment control practices and stormwater management along the state highway system. VTrans has hired two stormwater management interns to map stormwater systems in selected areas within Chittenden County, which will help detect and eliminate unauthorized discharges to these systems. Our agency has hired a “better backroads” intern who is coordinating with the Vermont Local Roads Program and the Better Backroads Program to raise awareness of erosion and sediment control practices. VTrans has conducted erosion and sediment control training for nearly 80 design, construction, and maintenance staff, and has assembled an erosion control team to review current design standards and make recommendations to improve them. We have also developed guidelines for maintenance of culverts and ditches, initiated erosion and sediment control assurance visits to all transportation construction sites this season, and have plans to dedicate one full-time position to work on stormwater design issues. [Vermont Agency of Transportation]

Response: No response is needed.

Local Municipal Actions

Comment: The TMDL would be enhanced by estimates of the cost to add staff and conduct training to ensure that local actions to prevent phosphorus loading are carried out. While the document suggests one staff position state-wide to help towns with local water quality planning, no estimates are provided for other municipal actions on any wider scale. Estimates from the Vermont League of Cities and Towns and the Department of Housing and Community Affairs should be included here. [City of South Burlington]

Response: We contacted both the Vermont League of Cities and Towns and the Department of Housing and Community Affairs to inquire about estimates of costs and staffing needs to promote local water quality planning and protection. Neither organization was able to provide such estimates.

Comment: The TMDL proposes that one staff position be created to assist municipalities undertaking revisions to their ordinances for better water quality protection. One position may be inadequate. Perhaps this goal could be accomplished by having the Lake Champlain Basin Program appoint one member to each of the relevant regional planning commissions, as proposed in the Legislature during the last session. [Lake Champlain Committee]

Response: We agree that need for technical assistance to municipalities for water quality protection is much greater than the scope of one position. However, that staff person would not be working alone. The position would have the benefit of many other people doing related work and other resources that have been developed at organizations such as the Lake Champlain Basin Program, the Lake Champlain Committee, the Vermont DEC Water Quality Division, the Vermont League of Cities and Towns, the U.S. Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, regional planning commissions, and other municipal commissions and

boards. We believe that the effort could benefit greatly from a staff person dedicated solely to this purpose.

Comment: The discussion of local municipal actions regarding impervious surface minimization and conservation site design includes terms that do not have commonly accepted definitions. Such terms include “conservation site design,” “careful site planning,” “minimum necessary impervious area,” and “cluster development.” It would be more effective to confine this discussion to general objectives for land development. [City of South Burlington]

Response: This section of the TMDL has been modified to eliminate terms that do not have commonly accepted definitions and to focus more on the general objectives for land development.

Comment: Please include a list of all towns in the Lake Champlain Basin who are covered by this TMDL. [Vermont League of Cities and Towns]

Response: A list of all Vermont cities and towns either wholly or partly within the Lake Champlain Basin has been added to the TMDL.

Forest Nonpoint Sources

Comment: As the TMDL notes, the implementation of forestry best management practices is the appropriate mechanism for addressing water quality impacts from silvicultural activities. [Rock-Tenn Company and American Forest and Paper Association]

Response: No response is needed.

Comment: Forestry Accepted Management Practices (AMPs) are not being implemented as they should be, and as the draft TMDL assumes. Field data on AMP implementation and maintenance should be used to quantify the true effectiveness of the AMP program. [USDA Natural Resources Conservation Service]

Response: The TMDL does not assume anything about the current status of compliance with the forestry AMPs. Rather, the nonpoint source load allocation in the TMDL is based on the assumption that full implementation of the forestry AMPs will be sufficient to maintain phosphorus loading from forest land at 1991 levels, and thereby achieve the load allocation assigned to forest land sources. We agree that monitoring the level of implementation and the effectiveness of nonpoint source management practices is an essential aspect of the TMDL implementation, as discussed in the Monitoring Plan section of the TMDL. However, priority for this type of monitoring should be given to practices involving agricultural and developed land because of the much higher phosphorus loading rates derived from these land uses.

St. Albans Bay

Comment: We are concerned by the increase in phosphorus loading allocated for St. Albans Bay, relative to the 1991 measured loads. St. Albans Bay has long been plagued by high levels of phosphorus, and we were troubled to note that other trouble spots such as the South Lake and Missisquoi Bay have lower limits, while St. Albans Bay has an increased allocation. [St. Albans Town]

Response: The total (external) loading capacity given for St. Albans Bay in the TMDL was based on the assumption that internal phosphorus loading from the bay's sediments will eventually decline to more normal levels in response to the treatment plant upgrade that occurred in 1987. However, it has proven to be very difficult to predict the timing and extent of the expected decline in internal loading in St. Albans Bay. It is therefore difficult to establish with confidence a total external loading capacity that will achieve water quality standards in the bay. Until the internal loading declines, it is unlikely that St. Albans Bay will achieve its water quality standard for phosphorus, regardless of how well external sources are managed and reduced.

The increase in the TMDL total loading capacity for St. Albans Bay, relative to the measured 1991 phosphorus loading rate to the bay, was the result of the difference between the actual phosphorus loads discharged by the St. Albans City Wastewater Treatment Facility during 1991 and the loads authorized in their discharge permit. The 1991 wastewater discharge was well below permitted levels because sewage flows were (and remain today) below the design capacity of the plant, and because the plant has been operated to remove more phosphorus than is required by the City's discharge permit.

The Department established the point source wasteload allocations in the TMDL in a manner that would not reduce the currently permitted flow capacity at the St. Albans Treatment Facility, or at any other treatment plant in the basin. Treatment plants are designed and financed by communities in anticipation of meeting both current and future sewage flow needs, and the Department was reluctant to retract these existing permitted flow capacities. Instead, reductions in effluent phosphorus concentrations are the means identified in the TMDL to reduce loadings at some facilities.

The effluent phosphorus concentration limit specified in the discharge permit for the St. Albans City facility (0.5 mg/l monthly average limit) is the lowest concentration limit required for any municipal treatment plant in Vermont, even considering the further treatment upgrades that will be required at other facilities in order to comply with the TMDL. Even with this strict treatment requirement, the City has been discharging an effluent that consistently averages well below 0.5 mg/l. By not allowing an increased wasteload allocation for the City above their 1991 discharge rates, we would be effectively punishing the City for operational performance that was better than the minimum phosphorus removal required. For these reasons, the Department believes that the wasteload allocation assigned in the TMDL to the St. Albans City Treatment Facility is a fair and appropriate one.

The TMDL notes that phosphorus loading rates to St. Albans Bay from nonpoint sources are among the highest (on a concentration or per watershed acre basis) in the Lake Champlain Basin. Excessive loading from nonpoint sources may be partly responsible, in addition to the internal loading problem, for the lack of water quality improvement in the bay. After further consideration of this situation, and in response to public comment, the Department has decided that it would be prudent to cap the total loading capacity for St. Albans Bay at no more than the 1991 measured level of 8.0 mt/yr. The point source wasteload allocation will remain at 2.8 mt/yr, and the nonpoint source load allocation will be reduced to 5.2 mt/yr. Achieving water quality standards in St. Albans Bay will still depend on reductions in internal phosphorus loading, but the revised allocation will require further reductions in nonpoint sources as a means to accelerate and maintain the recovery of the bay.

Comment: It seems premature to consider an alum treatment of St. Albans Bay, given that phosphorus concentrations in streams draining to St. Albans Bay are among the highest in the Lake Champlain Basin. Before conducting an alum treatment of St. Albans Bay, every effort possible should first be made to reduce nonpoint source loading. Otherwise, alum treatment will be viewed as a quick-fix solution to eutrophication problems in other lake segments with a resultant drain of resources away from reducing pollutant loading. [Lake Champlain Committee]

Response: We agree that progress in reducing nonpoint source phosphorus loading to St. Albans Bay should be a prerequisite before any alum treatment is attempted, and have revised the TMDL to make this clear.

Phosphorus Trading

Comment: We encourage the State not to preclude point-to-nonpoint source trading, as in the current implementation plan. While we acknowledge the technical difficulties inherent in such trades, we urge the State not to foreclose the possibility that such trades will occur in the future as USEPA and the states gain more trading experience. [Rock-Tenn Company and American Forest and Paper Association]

Response: See response to comment below.

Comment: We urge the Department to reconsider its decision to not allow point/nonpoint phosphorus trading. Municipalities should be enabled to take the initiative to implement the most cost-effective and results-oriented solutions when the opportunity arises. It seems to us that the main objection to trading is that point sources are easy to monitor and nonpoint sources are not, yet the TMDL says that the most significant reductions are going to occur from nonpoint sources. [Vermont League of Cities and Towns]

Response: Difficulty in monitoring nonpoint sources is one of several technical issues discussed in the TMDL in relation to phosphorus trading. However, the fundamental reason why the Department believes that point/nonpoint source phosphorus trading would be a bad policy for

Lake Champlain is that such a trade would likely involve a nonpoint source control project that is actually necessary to meet the nonpoint source load reduction requirements of the TMDL. The TMDL calls for full implementation of all the items listed in the Implementation Plan section of the TMDL, and a point/nonpoint source trade would almost inevitably involve one of these action items. If a nonpoint source control practice necessary to achieving the load allocation for a watershed were used in a trade to offset a point source loading increase, then ultimate attainment of the overall loading target for that watershed could become impossible.

It may be possible in the future to reconsider the option of point/nonpoint source phosphorus trading in the Lake Champlain Basin after measurable progress is made in reducing nonpoint source phosphorus loading to the lake and the target loads and in-lake criteria are achieved. At that point, trades that involve remaining nonpoint source control practices beyond those essential to the attainment of the nonpoint source load allocation targets could be considered for use in a point/nonpoint trade.

Other Implementation Actions

Comment: The TMDL should include a short-term plan for the control of Eurasian watermilfoil in Lake Champlain. Some of the funds listed in the draft TMDL for implementation of phosphorus reduction should be directed to milfoil control. [Lake Champlain Restoration Association]

Response: The Lake Champlain Phosphorus TMDL is a plan for allocating and reducing phosphorus loading to the lake in order to attain specific, in-lake phosphorus concentration criteria. Addressing the problem of Eurasian watermilfoil in Lake Champlain is outside of the scope of the TMDL. The Lake Champlain Basin Plan *Opportunities for Action* lists control of the introduction, spread, and impact of nonnative nuisance aquatic species such as Eurasian watermilfoil as one of the top management priorities for the lake, along with phosphorus reduction. Additional funding and management efforts are needed in both of these areas.

Comment: Wetlands are important in the maintenance of water quality. Wetland protection should be addressed in the TMDL. [Wetlands Program, Vermont DEC]

Response: A section on wetland protection and restoration was added to the Vermont Implementation Plan portion of the TMDL, including a discussion of funding needs for wetland restoration and acquisition.

Comment: We suggest that the Department may want to consider the reduced phosphorus loading that may occur as a result of implementation of the new on-site sewage law. [Vermont League of Cities and Towns]

Response: The possible effects of the new on-site sewage law on phosphorus loading to Lake Champlain are complex and difficult to predict at this point, since the indirect effects could involve land use changes as well as improved septic system performance. Septic systems are considered to

be a minor source of phosphorus loading within the Lake Champlain Basin as a whole, relative to other sources such as direct wastewater discharges and nonpoint source runoff.

Comment: Zinc orthophosphate is added to the water supply for corrosion protection and metal inhibitor purposes. Has anyone looked at trying to lower the level of phosphorus in public water supplies? This would lessen the costs of wastewater phosphorus removal, and would also lessen nonpoint sources such as pool draining, car washing, and hydrant flushing. [City of Winooski]

Response: See response to comment below.

Comment: The State should investigate the feasibility of using alternatives or reducing the use of zinc orthophosphate in drinking water as a rust inhibitor and to bind lead. [Lake Champlain Committee]

Response: We agree that it would be worthwhile to investigate the phosphorus loading and wastewater treatment impacts resulting from use of zinc orthophosphate in drinking water treatment in Vermont. We do not yet know whether this product represents a significant source of phosphorus loading to the lake, and so we believe that including a recommendation in the TMDL about reducing zinc orthophosphate use would be premature. However, we will look for an opportunity to support research on the quantities of this product that are used in Vermont and on possible alternatives. Municipalities concerned about the cost of phosphorus removal in their wastewater treatment facilities also have an incentive to investigate alternatives to this product.

Cost Summary

Comment: Funding for the Winooski River Coordinator is missing from the funding schedule. [Lake Champlain Committee]

Response: This oversight has been corrected in the TMDL.

Comment: The estimated total cost for implementation of the TMDL (\$133 million over 14 years) is alarming. How are the required infrastructure improvements to be funded in an era of tight state budgets? Are there federal funds available to assist in these efforts? [Vermont League of Cities and Towns]

Response: See response to comment below.

Comment: The quantification of the financial resources needed to achieve the load reductions subsequent to the TMDL is critical. We should develop a funding matrix that shows all resources currently being used in water quality improvement activities in the basin, and work with our federal and state legislators and agency heads to determine if these sources provide more potential for funding. Funds should be spent on developing this matrix and on follow-up. An economic study should be conducted to quantify the value of improved water quality as a return on our investment in phosphorus reduction. [Vermont Lake Champlain Citizens Advisory Committee]

Response: The TMDL indicates that a major contribution of federal funding will be essential, given the magnitude of the funding needed to implement the Lake Champlain Phosphorus TMDL. We agree that identification of funding sources for TMDL implementation is a critical next step once the TMDL is adopted. We will work with our Congressional delegation, state legislators, and other federal and state agencies in an effort to secure adequate funding for TMDL implementation. Identification of current programs and funding sources that provide potential for additional funding will be part of this process.

Interpretation of State and Federal Laws and Regulations

Comment: The Vermont Water Quality Standards and state and federal law do not provide any basis for compliance scheduling for existing point source discharges of phosphorus. Wasteload allocations must be developed for all point sources to assure that these discharges will have no contributions of phosphorus to the lake. Each permitted point source discharge must be held to a zero discharge standard. This should be achieved through capping existing permits at their existing load, denial of permits, enforcement, implementation of alternatives 2, 3, and 5 identified in the June 22, 2001 draft TMDL, and implementation of 2:1 offsets for any remaining discharge after full effluent standard implementation. [Conservation Law Foundation]

Response: The TMDL does not provide compliance schedules for existing point source discharges with NPDES permits. Instead, the TMDL states that implementation of the additional phosphorus removal treatment required in the TMDL beyond the currently permitted loads will be accomplished through appropriate modification of the individual facility discharge permits as the permits come up for renewal during their five-year permit cycles.

The TMDL assigns an individual phosphorus wasteload allocation to each of the 60 currently permitted Vermont municipal and industrial wastewater discharges. There is no requirement in either federal or state law that municipal and industrial wastewater discharges be held to a zero discharge standard. The purpose of a TMDL is to apportion assimilative capacity among existing and new discharges to achieve water quality standards. (See 40 C.F.R. 130.2 and 130.7)

Comment: The wasteload allocations in the TMDL were not conducted in compliance with the Vermont Wasteload Allocation rule. [Conservation Law Foundation]

Response: The wasteload allocations in the TMDL were conducted in compliance with all applicable requirements of the Agency's Wasteload Allocation Process rule (Chapter 17 of the Vermont Environmental Protection Rules, Administrative Rule 87-46) regarding the evaluation of alternatives and other considerations. It should be noted that this rule was originally designed primarily for allocation of ultimate oxygen demand (UOD) from municipal and industrial wastewater discharges. Therefore, not all aspects of the rule are applicable to modeling phosphorus loading. For example, the rule requires that analysis be based on 7Q10, low flow conditions (See the Wasteload Allocation Process rule at page 4). Modeling under low flow

conditions makes sense for analyzing UOD, but makes no sense in modeling phosphorus loading. Strict compliance with this requirement would have ruled out consideration of phosphorus loading during high flow events such as storms.

Comment: The wasteload allocations in the TMDL do not include all point sources. The wasteload allocations do not include stormwater discharges that trigger NPDES jurisdiction, such as discharges subject to multi-sector industrial stormwater permits, stormwater discharges that contribute to the water quality standards violations in the lake, stormwater discharges from construction sites, and concentrated animal feeding operations (CAFOs). All of these point sources must be included in the wasteload allocation. [Conservation Law Foundation]

Response: The comment is correct that the "wasteload allocation" in the April 29, 2002 TMDL public review draft did not include collected stormwater point source discharges. Collected stormwater discharges, which include stormwater from construction sites, industrial sites, and major impervious surfaces were placed in the "load allocation" as a component of the "developed land" category that also includes nonpoint wet weather flows.

In its comments on the draft TMDL, USEPA stated that it interprets 40 CFR § 30.2(h) to require that allocations for NPDES-regulated discharges of stormwater be included within the wasteload allocation component of the TMDL. USEPA also noted that in instances where there is insufficient data to calculate loads on an outfall by outfall basis, the stormwater wasteload may be expressed as an aggregate or categorical allocation. USEPA also acknowledged that in cases where it is difficult to separate regulated from unregulated stormwater discharges, it would also be acceptable to include both stormwater discharges subject to the NPDES permit program as well as nonpoint source stormwater discharges (which would typically be included in the load allocation portion of the TMDL) in this aggregate wasteload category.

Because of data limitations, it is not possible to separate the stormwater discharges subject to the NPDES program (i.e., stormwater from CSOs and discharges regulated under Phase I and Phase II of the stormwater program) from nonpoint source wet weather flows. Therefore, in the final version of the TMDL all "developed land" sources are included in the wasteload allocation. This category includes the NPDES-subject stormwater discharges as well as some nonpoint wet weather flows which technically should be in the "load allocation."

Seasonal phosphorus testing at the mouth of the major tributaries to Lake Champlain and routine phosphorus monitoring reports from industrial and municipal wastewater discharges make it possible to accurately calculate the phosphorus contribution from wastewater flows and to calculate the total contribution from other phosphorus sources. However, determining the relative contributions of phosphorus from agricultural land, forest land, and developed land requires less precise land use based phosphorus export modeling. A description of how estimates of phosphorus from "developed land" were derived is included in the TMDL document. Because of the difficulties associated with calculating phosphorus loads in stormwater on an outfall by outfall basis, the developed land category is presented as an aggregate wasteload allocation. This

aggregate allocation also would cover any stormwater discharges that become subject to NPDES permits as a result of a case-by-case determination that the discharger contributes to a violation of water quality standards or is a significant contributor of pollutants.

The Department also recognizes that CAFOs with discharges must be included with other NPDES-regulated point sources in the wasteload allocation. The Department does not believe there are any farms in Vermont that currently meet the definition of a CAFO, given that the Large Farm Operation permit program administered by the Commissioner of Agriculture, Food, and Markets ensures that large farms do not discharge below the 25-year/24-hour storm event. As explained in the TMDL, in the event a CAFO is identified, any NPDES permit issued by the Department for CAFOs would prohibit discharges below that storm event. Therefore the TMDL sets a wasteload allocation of zero for any discharges from CAFOs below the 25-year/24-hour storm event. Discharges from large farm operations during larger, more infrequent storm events are currently accounted for in the load allocation portion of the TMDL. If such facilities are identified in the future to be CAFOs, allocations for discharges above the 25-year/24-hour storm event will be considered to be wasteload allocations.

Comment: Under Federal regulations, wasteload allocations are a form of water quality based effluent limitations (WQBELs). Wasteload allocations must be defined in such a manner that water quality standards are met at the time the discharge is authorized through inclusion of enforceable controls in each permit. The draft TMDL does not indicate that nonpoint source controls will be included as enforceable provisions of wasteload allocations through WQBELs. As a result, the wasteload allocations in the TMDL do not meet the basic definitional requirements of the applicable federal law. [Conservation Law Foundation]

Response: The comment suggests that a TMDL must, as a matter of law, provide that nonpoint source controls be included as enforceable conditions in point source permits and that all reductions necessary to achieve water quality standards must occur simultaneously. This is an incorrect reading of federal law and USEPA guidance.

The definition of Wasteload Allocation (WLA) at 40 C.F.R. 130.2 states that “WLAs constitute a type of water quality-based effluent limitation.” However, section 130.2 defines a TMDL as the sum of the WLA (attributable to existing or future point sources of pollution) and the “load allocation” (attributable either to one of its existing or future nonpoint sources of pollution or to natural background sources). The definition of a TMDL also spells out the relationship between controls on point and nonpoint discharges:

“If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.”

The fact that a TMDL establishes a tradeoff between point and nonpoint source pollutant reduction does not mean that controls on nonpoint sources must be enforced through WQBELs on point sources. In light of the tradeoff, USEPA has, for more than a decade, required the States to provide “reasonable assurance” of being able to implement nonpoint source controls recommended in a TMDL. The demonstration of “reasonable assurance” may take a variety of forms due to the fact that nonpoint source controls are not subject to NPDES permit requirements. In addition, USEPA has recognized that point and nonpoint source pollutant reductions under a TMDL will not occur simultaneously and must be scheduled over time.

In complex TMDLs such as this one where there is limited information and when the impairment is caused by both point and nonpoint sources, USEPA guidance suggests that the States adopt a “phased TMDL.” USEPA set forth the recommendation in Chapter 2 of its 1991 *Guidance for Water-Quality-based Decisions: The TMDL Process*, as follows:

“Where nonpoint source controls are involved, the phased approach is also necessary. Under the CWA, the only federally enforceable controls are those for point sources through the NPDES permitting process. In order to allocate loads among both nonpoint and point sources, there must be reasonable assurances that nonpoint source reduction will in fact be achieved. Where there are not reasonable assurances, under the CWA, the entire load reduction must be assigned to point sources. With the phased approach, the TMDL includes a description of the implementation mechanisms and the schedule for the implementation of nonpoint source control measures.”

In summary, federal law does not, as the comment suggests, require each individual wasteload allocation to result in standards attainment independent of other expected load reductions. To the extent that questions arise in the future as to what effluent limitations are necessary to effectuate the TMDL, those issues are appropriately addressed in the permitting process, and are not relevant to whether the TMDL itself is sufficient to meet water quality standards. The record supporting the Lake Champlain TMDL provides a sound basis for concluding that compliance with the target loads in the TMDL will lead to attainment of water quality standards in the lake for phosphorus.

Comment: Federal regulations require that nonpoint source load allocations are to be conducted for individual sources of loading. It is inappropriate to allocate nonpoint source loads to broad categories of discharges in massive tributary watersheds. [Conservation Law Foundation]

Response: There is no requirement in federal rules that nonpoint source discharges be assigned individual load allocations. USEPA’s definition of load allocation (40 CFR §130.2(g)) states that “Load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading.” There are no practical means for assigning load allocations to individual nonpoint sources across a watershed the size of the Lake Champlain Basin. A detailed inventory of each source (e.g., an inventory of each farm, each backroad, each stormwater discharge, each construction site, each residential development, each eroding streambank, etc.) does not exist.

Even if such inventories were developed, there are no credible scientific methods or monitoring data that would allow us to estimate the current phosphorus load from all these individual sources, or to assign individual load allocations based on quantitatively known phosphorus reduction effectiveness of BMPs. Such precision in the regulation of nonpoint sources is not likely to ever be a realistic possibility. Instead, the Lake Champlain Phosphorus TMDL used land use based phosphorus export modeling to assign proportionate phosphorus load reduction responsibilities to major source sectors such as agricultural and developed land in order to define the overall magnitude of the responsibilities given to each sector. The Lake Champlain TMDL acknowledges these data limitations while identifying the implementation actions that, if applied broadly, have a reasonable expectation of achieving water quality standards in the lake.

Comment: Reliance on existing permitted wastewater capacity to offset future growth is inappropriate in the presence of water quality standards violations. No permitted, currently unused wastewater capacity should be considered to be available until water quality standards are met in the lake. [Conservation Law Foundation]

Response: As previously noted, the purpose of the TMDL is to prepare an allocation plan for existing and future point source wasteloads and nonpoint loads that will result in achievement of water quality standards. Currently unused permitted capacity has been included in this plan sufficient to accommodate the population growth that Vermont has historically experienced. That capacity has been factored in calculating the reductions necessary from other existing sources of pollutant loading.

Comment: The TMDL places responsibility on local governments for a number of implementation actions such as oversight of construction site erosion control, road management and policy, establishment of riparian buffers, and implementation of conservation site design, all at enormous cost to the state and local governments. These are certain to all be good ideas. What will be the result of these elements' inclusion in the TMDL? Are they then enforceable under state law or under the federal Clean Water Act? Will non-profit environmental organizations have grounds to take action against towns who do not implement these elements in a timely manner? [Vermont League of Cities and Towns]

Response: As previously noted, TMDL implementation plans are not approved by USEPA when it approves the TMDL wasteload and load allocations. The State may make changes to the implementation plan provided they achieve the load and wasteload targets set forth in the TMDL. Statutory changes and additional funding from the Vermont General Assembly and federal sources will be required to implement the TMDL. Many of the activities required of municipalities in the TMDL are required independently of the TMDL plan. However, in the event that the TMDL cannot be implemented as approved by USEPA, an amended TMDL would have to be submitted that would most likely include additional expensive controls on municipal waste water discharges.

The question of third party enforcement of the TMDL requires elaboration. Under the "citizen suit" provision of section 505 of the Clean Water Act (33 U.S.C.A. 1365), citizens may take action

against dischargers for violating “effluent standards or limitations” in an NPDES permit or against USEPA for failing to perform a nondiscretionary duty. USEPA is not required to take any action under the TMDL, so the citizen suit provision is only relevant with respect to violations of effluent standards or limitations. Effluent standards and limitations include BMPs.

With respect to municipalities, any violation of the NPDES discharge permit conditions for the facility, including BMPs or other requirements based on the TMDL wasteload allocation, is a proper subject for a federal citizen suit. In addition to individual municipal wastewater facility permits, citizen suits could be brought to enforce permit compliance for municipal activities covered under the construction general permit and the multi-sector general permit. Towns in Chittenden County that must obtain coverage under the Phase II general stormwater permit will also be subject to a federal citizen suit if they violate a permit limitation. The federal citizen suit provision would not apply to activities such as road management and policy, establishment of riparian buffers, and implementation of local zoning ordinances for water quality protection except to the extent that these activities are among BMP measures incorporated into an NPDES permit.

There is no citizen suit enforcement provision in state law. However, pursuant to 10 V.S.A. §1269, citizens may appeal Agency of Natural Resources permit decisions to the Vermont Water Resources Board. Federal regulation (40 C.F.R. 122.44(d)(1)(vii)(B)) requires that NPDES permits be consistent with wasteload allocations in TMDLs. Similarly, section 1-04 of the Vermont Water Quality Standards requires that state and federal discharge permits be consistent with TMDL wasteload allocations. Thus, a citizen group might challenge the Department’s decision to issue an NPDES municipal wastewater permit or a state stormwater permit on the basis that the permit is not consistent with the TMDL. Again, activities such as road management and policy, establishment of riparian buffers, and implementation of local zoning ordinances for water quality protection do not typically require state or federal NPDES permits, and failure of municipalities to implement these activities would not be appealable to the Water Resources Board.

While road management and policy, establishment of riparian buffers, and implementation of local zoning ordinances for water quality protection are not directly enforceable by permit, the Agency will take these requirements into account in issuing grants and in seeking funding from state and federal sources.. The Agency will also advocate on behalf of these measures in Act 250 proceedings. However, the major incentive for municipal compliance with these nonpoint related pollution abatement programs is that failure to enact them will necessitate an amended TMDL placing greater burdens on municipal and industrial waste dischargers. A review of the phosphorus loading data in the TMDL indicates that even if discharges from all point sources were completely eliminated, the state would still have to reduce nonpoint source discharges to achieve water quality standards in many lake segments. That means the nonpoint source control recommendations in the TMDL must be diligently pursued.

Use of 1991 Data

Comment: We question why only 1991 phosphorus data are included in the maps and tables. Even if a choice has been made to base the TMDL's recommendations on the 1991 data alone, all available data should be fairly presented in the document. [City of South Burlington]

Response: See response to comment below.

Comment: The fact that this TMDL is based largely on estimates in the past several years is disturbing. Much more and new data collection needs to take place. [Vermont League of Cities and Towns]

Response: A figure showing annual mean total phosphorus concentrations in each lake segment from 1990 to 2001 has been added to the TMDL in order to show more recent monitoring data. The inclusion of more recent lake monitoring data did not change the general conclusion that many lake segments remain out of compliance with their respective concentration criteria, and that implementation of the TMDL is necessary to attain water quality standards in the lake.

A more detailed analysis of the status and trends of phosphorus in Lake Champlain, including an updated assessment of phosphorus loading to the lake from its tributaries, is being prepared by the U.S. Geological Survey and the Vermont DEC based on monitoring data during 1990-2000. This assessment involves statistical adjustment for annual hydrologic variations that strongly influence tributary loads, and other analyses to determine the statistical significance of trends. The findings of this analysis will be published following a technical review process.

The Monitoring Plan section of the TMDL describes the scope of long-term water quality monitoring and other data collection activities that will be needed to evaluate progress in meeting the loading targets and in-lake phosphorus criteria. It will be important to gather sufficient data to determine whether progress is being made, and to identify the reasons for any lack of progress so that program efforts can be redirected if necessary.

Comment: The City is concerned about the use of 1991 land use data to establish nonpoint source phosphorus loads and reduction targets. Developed land cover has increased in South Burlington since 1991. The TMDL is likely to be underestimating the developed land load reductions needed to meet targets for Shelburne Bay and other lake segments. [City of South Burlington]

Response: Basin-wide land use and land cover data (ca. 1993) and associated phosphorus export rates were used in the TMDL to estimate the relative phosphorus loading contributions from three major land use categories during the 1991 base year. The purpose of this analysis was to derive a fair basis for dividing the total nonpoint source load allocation among the three major land use categories. Since 1991 was determined to be a representative hydrologic reference year, and because 1991 remains the only time period for which comprehensive nonpoint source phosphorus loading measurements are available for Lake Champlain, we chose in the TMDL to apply the

relative proportions of loading from these land use categories during 1991 as a basis for assigning load allocations among the sources associated with these land use categories. The TMDL calls for reductions in loading from agricultural and developed land sources that are proportional to the relative contributions of these sources during 1991.

If phosphorus loading from developed land sources has been allowed to increase since 1991 in the Shelburne Bay watershed, then it is true that the size of the phosphorus reduction task for these sources has grown in this watershed. This does not mean that the division of responsibility between agricultural and developed land sources in the TMDL is unfair, however. It means that greater phosphorus reduction efforts will need to be directed at the phosphorus sources that have grown the fastest during the past decade, in order to attain the loading targets for the watershed.