February 16, 2006

Alicia Good, Assistant Director of Water Resources
Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908

SUBJECT: **Notification of Approval of Green Hill & Ninigret Ponds watershed TMDL**

Dear Ms. Good:

Thank you for Rhode Island's submittal of the Green Hill & Ninigret Ponds Watershed Total Maximum Daily Load (TMDL), South Kingstown and Charlestown, Rhode Island, for bacteria and pathogens. These water bodies are included on Rhode Island's 2002 303(d) list and were prioritized for TMDL development. The purpose of the TMDL is to address impairments of primary contact recreation and shellfish harvesting due to pathogens from point and nonpoint source pollution.

The U.S. Environmental Protection Agency (EPA) hereby approves Rhode Island's February 9, 2006 Green Hill & Ninigret Ponds Watershed TMDL, first received by EPA on April 1, 2005, and later with revisions. EPA has determined that this TMDL meets the requirements of §303(d) of the Clean Water Act (CWA), and of EPA's implementing regulations (40 CFR Part 130). Attached is a copy of our approval documentation.

My staff and I look forward to continued cooperation with the RI DEM in exercising our shared responsibility of implementing the requirements under Section 303(d) of the CWA.

If you have any questions, please contact Stephen Silva (617-918-1561) or Steven Winnett (617-918-1687) of my staff.

Sincerely,

/s/

Linda M. Murphy, Director
Office of Ecosystem Protection

cc Angelo Liberti, RI DEM
Elizabeth Scott, RI DEM
Brian Zalewsky, RI DEM
Stephen Silva, EPA
Steven Winnett, EPA

EPA NEW ENGLAND'S TMDL REVIEW

TMDL: Green Hill and Ninigret Ponds Watershed:

Green Hill Pond	RI0010043E-02
Ninigret Pond	RI0010043E-04B
Factory Pond Stream	RI0010043R-02
Teal Pond Stream	RI0010043R-04

Location: Towns of South Kingstown and Charlestown, Rhode Island.

STATUS: Final

IMPAIRMENT/POLLUTANT: These four water body segments are not meeting criteria for fecal coliform concentration and are not supporting designated uses of contact recreation, and in Class SA segments, shellfish harvesting. Green Hill and Ninigret Ponds are designated Class SA segments, while Factory Pond and Teal Pond Streams are designated Class A, although the mouths of the two streams must meet the Class SA standard. A year-around TMDL submission is presented for fecal coliform.

BACKGROUND: The Rhode Island Department of Environmental Management (RI DEM) submitted to EPA New England the final Total Maximum Daily Load Analysis for *the Green Hill and Ninigret Ponds watershed* (the "TMDL," "submission," or "Report") with a transmittal letter dated April 1, 2005. RI DEM addressed EPA's June 4, 2004 written comments, and its comments given in a meeting with DEM on March 28, 2005.. In addition, RI DEM submitted a revised final TMDL on February 9, 2006 with some clarifications requested by EPA.

The following review explains how the TMDL submission meets the statutory and regulatory requirements of TMDLs in accordance with § 303(d) of the Clean Water Act, and EPA's implementing regulations in 40 CFR Part 130.

REVIEWERS: Steven Winnett (617-918-1687) E-mail: winnett.steven@epa.gov

REVIEW ELEMENTS OF TMDLs

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. § 130 describe the statutory and regulatory requirements for approvable TMDLs. The following information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Water Body, Pollutant of Concern, Pollutant Sources and Priority Ranking

The TMDL analytical document must identify the water body as it appears on the State/Tribe's 303(d) list, the pollutant of concern and the priority ranking of the water body. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and, (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments, or chlorophyl a and phosphorus loadings for excess algae.

The Green Hill and Ninigret Ponds watersheds are located in the Towns of South Kingstown and Charlestown, Rhode Island. The Report describes the pollutant of concern (fecal coliform bacteria), a surrogate for pathogen-caused impairment of the designated uses for primary contact recreation, and shellfish harvesting for those waters classified as SA (TMDL pp. 1). It lists the water bodies as they appear on the State's 2002 303(d) list (TMDL p.vi), and explains that these waters have the highest priority for TMDL development (TMDL p.1). The document also describes the TMDL study area, its demographics, its soils and land uses, and a brief history of previous water quality enforcement activities (TMDL pp. 3-7).

DEM permanently closed Green Hill Pond to shellfishing in 1994. In 1996, DEM extended the closure into the eastern end of Ninigret Pond.

Bacteria impairments arise both during dry weather and from wet weather events. As described in the TMDL analysis (TMDL pp. 8-12), only three of twelve sampling stations in the major ponds showed dry weather exceedances, while all but one of the twelve sampling stations in the tributary streams showed dry weather standards violations. Similarly, five of twelve sampling stations in the major ponds recorded wet weather bacteria exceedances, while nearly all the stations in the tributary streams for which there were data showed wet weather violations. The submission includes a detailed discussion of the nonpoint sources that contribute to the water quality impairments (TMDL pp. 18-30), as well as in-depth discussions of the data that indicate the sources and what methods were used to acquire them. In addition, a few sources of stormwater runoff from identifiable pipes or conveyances affect two of the sampling locations. Because the study area is in two MS4 communities, these are permitted point sources, and are included in the wasteload allocation for only those specific segments.

***Assessment**:* RI DEM has adequately identified the water bodies, the pollutant of concern, the magnitude and location of the sources of pollution.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribe water quality standard, including the designated use(s) of the water body, the applicable numeric or narrative water quality criterion, and the antidegradation policy. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable water quality standard is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

The numeric water quality target is set for all waters at the appropriate numeric water quality standard for bacteria. RI DEM explains that the applicable water quality standards (and therefore, TMDL targets) vary depending on the classification of each water body, and that the Green Hill and Ninigret Ponds watersheds, its coves and tributaries are composed of two different water quality classifications (TMDL p. 1). The two Ponds are designated Class SA while the two tributary streams are designated Class A. The fecal coliform water quality standard for Class SA waters is a geometric mean value of 14 fc/100 ml, with not more than 10% of the samples exceeding a value of 49 fc/100 ml. The standard for Class A waters is a geometric value of 20 fc/100 ml, with not more than 10% of the samples exceeding a value of 200 fc/100 ml. Designated uses, numeric water quality criteria, and anti-degradation are all addressed in the submission (TMDL p. 1).

***Assessment**:* EPA New England concludes that RI DEM has properly presented its water quality standards when setting a numeric water quality target.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in EPA guidance, a TMDL identifies the loading capacity of a water body for a particular pollutant. EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating water quality standards (40 C.F.R. § 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. § 130.2(i)). The TMDL submittal must identify the water body's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the water body as part of the analysis of loading capacity (40 C.F.R. § 130.7(c)(1)). The critical condition can be thought of as the "worst case" scenario of environmental conditions in the water body in which the loading expressed in the TMDL for the pollutant of concern will continue to meet water quality standards. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

RI DEM sets the numeric water quality targets at the applicable water quality criteria or standard for each of the segments in the TMDL study area, depending on each water segment's classification, as outlined in the TMDL report.

RI DEM describes the rationale for the methods used to establish the cause-and-effect relationship between the numeric targets (WQS) and the identified pollutant sources. RI DEM sets a reduction goal for each impaired water body area or segment (as a whole) by comparing current fecal coliform concentrations to the applicable water quality target, then calculating the percent reduction required to reach that target (Tables 5.5-5.7, pp. 37-39). The water quality standards specify both geometric mean and 90th percentile criteria, and RI DEM uses the higher percent reduction to set each segment's necessary percent reduction. RI DEM explains the three-step process for calculating the reduction goals (TMDL pp. 32-33) and provides a discussion of the strengths and weakness in the analytical process for linking water quality to sources of pollutants (TMDL p. 40).

RI DEM also states that the tributaries are major sources of bacteria to the ponds, and that if the tributaries meet the stricter water quality standards for shellfishing (Class SA: 14 fc/100 ml at the mouth), the ponds will support their designated uses (TMDL, p. 32).

Assessment*:* EPA New England concludes that the loading capacities, having been set equal to the WQSs, have been appropriately set at levels necessary to attain and maintain applicable water quality standards. The TMDL is based on a reasonable approach for establishing the relationship between pollutant loading and water quality in the ponds, coves, and tributaries.

EPA New England also concurs with expressing the bacteria TMDLs as concentrations in lieu of mass-per time because these units are the same as the state water quality standards. In addition, concentration is mathematically related to per time loading (concentration multiplied by stormwater flow volume per time results in mass per time).

EPA's regulations at 40 C.F.R. §130.7(c)(1) require that TMDLs identify water quality targets that are consistent with all applicable water quality standards. EPA New England has accepted the percent reduction approach for bacteria TMDLs in some rivers and streams under an assumption that the reductions needed to meet applicable water quality standards (WQS) at ambient stations are representative of the reductions needed to meet the applicable standards throughout the water body.

In comments on the draft TMDLs, EPA expressed the concern that for the ponds themselves, the ambient stations used to calculate the reduction targets were located too far off shore to be "representative" of water quality throughout the segment, and did not account for violations of bacteria criteria demonstrated by data collected at non-shellfish stations. These data were not used to calculate the TMDL and consequently, reduction targets were not established for some of the segments and locations which might otherwise have been assigned reduction targets.

Rhode Island responded in three ways. First, they stated that since the tributaries and coves were a major source of bacteria to the ponds, having them meet the more strict standards for shellfishing at their mouths would ensure that the ponds will support their designated uses. In the TMDL allocation, the tributaries are subject to reduction levels of 98 and 99 percent. Second, DEM stated that implementation efforts will be watershed-wide, and will treat all areas within the study area. Third, DEM inserted language acknowledging that shore line surveys and additional monitoring closer to sources are necessary to assure that standards are met as controls are implemented and that non-shellfish program information (such as beach data and volunteer monitoring) will be considered and followed up with as appropriate. This language is discussed in more detail, below at **8. Monitoring Plan for TMDLs Developed Under the Phased Approach**.

In EPA's judgment, this follow-up data will be needed as progress is made toward controlling sources to confirm the attainment of water quality standards throughout the water body. **The fact that the TMDL document requires a high level of fecal coliform reductions in the coves and tributaries, where the majority of the pollutants causing use impairments appear to originate, provides the basis for this approval.** Given RI DEM's explanation that TMDL implementation is driven by shoreline surveys and watershed-wide BMP implementation to achieve stringent removal estimates (some greater than 95%), it is EPA's expectation that the level of pollutant removal required in the tributaries and coves will, as a matter of course, result in the attainment of applicable water quality criteria and support for designated uses throughout the Ponds as well.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 C.F.R. § 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. § 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable water quality standard, and all nonpoint and background sources will be removed.

RI's submission contains a load allocation (LA) for each segment (or tributary station) not meeting standards that is expressed as the percent reduction required to meet the applicable water quality criteria (please see the Appendix for the specific allocations). The submission states that the majority of the required reductions in the pond and tributaries are allocated to nonpoint sources. Although there are no permitted, NPDES wastewater point sources in the study area, there are sources of stormwater from developed areas which contribute to runoff through identified culverts, pipes, or other conveyances, and which are therefore permitted point source discharges. The runoff from these stormwater sources is considered part of the wasteload

allocation (WLA) for the two locations which experience that runoff. The LA is assumed to be 100% of the load capacity in all segments or at all sampling stations where there are no point source contributions. At the two locations with point source contributions, the LA is calculated as 100% minus the WLA. The calculation of the WLA is explained below in Section 5.

***Assessment**:* EPA New England concludes that load allocations are adequately specified in the TMDLs.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 C.F.R. § 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable water quality standard, and all point sources will be removed.

In preparing the wasteload allocations, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. But it is necessary to allocate the loading capacity among individual point sources as necessary to meet the water quality standard.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the State/Tribe will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

RI's submission contains a waste load allocation (WLA) for the two segments that have point source discharges, and that do not meet standards, that is expressed as the percent reduction required to meet the applicable water quality criteria (please see the Appendix for the specific allocations). As there are no permitted, wastewater point sources in the TMDL study area, the submission contains a wasteload allocation (WLA) for two locations (or sampling stations) known to have stormwater runoff contributions from identified culverts, pipes, or other conveyances. Because the study area is in two MS4 communities, these runoff sources are permitted point sources.

The WLA is expressed as the percent reduction required for the water body to meet the water quality standards. Because of the difficulties of determining the relative amount of point source and nonpoint source runoff, the WLA for these TMDLs is set by estimating the percentage of the watershed that would be expected to contribute to the point source loading for those two locations known to have those loadings, by making the relative contribution of point sources to the required load reduction equal to the percent impervious cover of the area discharging to the location (TMDL pp. 35-36, and Table 5.7). Those point source contributions to the total load, and consequently the WLA, are 1.5 % and 7%, respectively, for Factory Pond Stream and the Allen's Cove portion of Green Hill Pond.

***Assessment**:* The WLA is based on the amount of developed land that would contribute to the stormwater runoff in those two locations that have permitted, stormwater point source runoff. Using the percent impervious cover for those contributing watersheds is a reasonable way to estimate the percent of the total load to that location attributable to the point sources. EPA New England concludes that the WLAs for this submission are acceptable and reasonable.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1)). EPA guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

RI DEM identifies the following conservative assumption as providing an implicit margin of safety in the TMDL:

- Conservative estimates of the number of days needed for the watershed to recover to pre-storm levels of bacteria were used in the weighted geometric mean calculations which drive the required load reductions. Although monitoring results show that the ponds return to pre-storm levels of bacteria three days after a rain event, it was assumed for purposes of the TMDL analysis that it takes six days for the pond to recover.

The geometric mean for bacteria levels over the year is used to set the levels of bacteria measured in the water body, which must be reduced to meet water quality standards. The higher the measured levels, the greater reductions that are required to meet standards and to restore designated uses. In the calculation of the mean, the average yearly bacteria levels for both dry and wet weather conditions are weighted by the number of days per year in which they occur. By increasing the number of days over which a wet weather event extends, beyond the minimum needed for the water column to return to pre-storm levels of bacteria, DEM is increasing the percentage of annual wet weather condition days, which gives greater weight to bacterial levels measured during those conditions in the calculation of an overall mean or average for the year. Because bacteria levels tend to be much higher during wet weather conditions, this tends to increase the geometric mean for the year and increase the required reduction in bacteria levels necessary to meet water quality standards. This provides a margin of safety to the TMDL analysis.

In addition, RI DEM has calculated the likely increase in required bacterial reductions due to the additional days used in defining the extent of a wet weather event, which helps to quantify the magnitude of the margin of safety provided by that conservative assumption. DEM estimates that the additional days used to define a wet weather event contribute an average 7% margin of safety to the TMDL.

Finally, the main tributaries have a higher allowable fecal coliform bacteria limit than the ponds, whose limits are more stringent due to their SA classification. At the mouth of the tributaries, where they discharge to the ponds, the target is set at the more stringent of the two standards, resulting in an MOS for just those locations.

***Assessment**:* EPA New England concurs that an adequate MOS is provided by the conservative assumption made in setting the TMDL target and in assigning load and wasteload allocations, weighting the generally higher bacteria levels occurring during wet weather conditions more heavily in setting the TMDL targets for bacteria reductions.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1).

This TMDL addresses seasonal variation because the required reductions were calculated for the critical conditions during the summer, when bacteria levels are highest. Bacteria levels are highest in summer due to the dramatically higher summer population, which rents cottages, many of which use individual septic systems built long ago with now outdated technology (hand-dug cesspools). The reductions required for summer bacteria levels are applied year round, even when bacteria levels are much less. Therefore, the TMDL allocations protect designated uses during the entire year.

***Assessment**:* EPA New England concludes that seasonal variations have been adequately accounted for in the TMDLs because the TMDLs were developed to be protective during the critical summer period, and will therefore be more than adequately protective during the other seasons..

8. Monitoring Plan for TMDLs Developed Under the Phased Approach

EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan when a TMDL is developed under the phased approach. The guidance recommends that a TMDL developed under the phased approach also should provide assurances that nonpoint source controls will achieve expected load reductions. The phased approach is appropriate when a TMDL involves both point and nonpoint sources and the point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. EPA's guidance provides that a TMDL developed under the phased approach should include a monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of water quality standards.

In response to EPA's concern regarding reliance on off-shore ambient monitoring stations in the Ponds themselves to set load reduction targets and allocations, RI DEM has added the following language to its section on monitoring:

"Additional monitoring is required to ensure that water quality standards are met as remedial actions are accomplished. Monitoring by RIDEM will be the principle method of obtaining the data necessary to track water quality conditions in the watershed. Also, as proposed BMPs are installed in the watershed, post construction influent and effluent sampling may be required to assess the effectiveness of the selected technology.

"In accordance with National Shellfish Sanitation Program (NSSP) requirements, the RIDEM Shellfish Monitoring Program will monitor water quality and conduct shoreline surveys. RIDEM will ensure that ambient sampling stations are located adjacent to point sources and effectively evaluate all nonpoint sources of pollution, including the addition and/or modification of sampling locations, as necessary. As discussed previously in the report, based on a review of the source sampling data, the Shellfish Program has decided to add a new sampling station in the vicinity of Gooseberry Island in Green Hill Pond (referred to in this study as station GH24) to the routine shellfish monitoring surveys. Shoreline surveys entail the evaluation of the effect of each actual and potential source of pollution on shellfish waters including as necessary, the collection of ambient water quality samples. In addition, non-shellfish program data (such as information on potential sources, beach and volunteer monitoring) will be considered and followed up with confirmatory monitoring by RIDEM, following NSSP approved methods, as appropriate.

"The continued water quality monitoring and future shoreline surveys will be used to help evaluate the effectiveness of the recommendations of the TMDL in restoring designated uses and attaining water quality standards. Ultimately, attainment of the designated shell fishing use requires compliance with the Rhode Island water quality standards including ambient water quality criteria and all NSSP requirements (including evaluation of non-shellfish program data/surveys, special sampling site data, beach and volunteer monitoring, as appropriate)." (TMDL p. 47)

RI DEM intends to use shoreline surveys performed as part of its NSSP program as a primary tool for identifying problem areas for both correction and special priority ambient water near shore monitoring. RI DEM envisions implementing the TMDL across the entire study area using an iterative process whereby water quality improvements are evaluated using shore line surveys and representative ambient near-source monitoring once the most significant pollution sources have been addressed, with additional control measures implemented, on an as-needed basis until water quality standards are achieved throughout the study area. As problems identified by shoreline surveys and end-of-pipe monitoring are corrected, RI DEM will conduct near shore ambient monitoring and compare to water quality criteria to confirm water quality standards have been attained.

***Assessment**:* Addressed, though not required.

9. Implementation Plans

On August 8, 1997, Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist States/Tribes in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by EPA, they help establish the basis for EPA's approval of TMDLs.

A detailed implementation plan is provided in the submission (TMDL pp. 41-45). As mentioned above, DEM envisions a implementation program across the entire study area guided by shoreline surveys followed by representative ambient (near source) monitoring once the most significant pollution sources have been mitigated, to guide problem identification, correction and ultimate water quality attainment confirmation. The plan recommends use of several types of corrective actions, including measures to reduce stormwater runoff to the area from identifiable (regulated) point sources, improving septic system performance, and the control of other nonpoint source runoff, especially that from wildlife and waterfowl, and pets.

Assessment: Addressed, though not required.

10. Reasonable Assurances

EPA guidance calls for reasonable assurances when TMDLs are developed for waters impaired by both point and nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for EPA to determine that the load and wasteload allocations will achieve water quality standards.

In a water body impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, States/Tribes are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in State/Tribe implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

Reasonable assurance is not required because point sources are not given less stringent wasteload allocations based on the assumption of future nonpoint source load reductions. However, RI DEM addresses reasonable assurances that stormwater runoff reductions will occur by providing information about past and current surveys, and past work in the watershed (TMDL pp. 13-30) which point to a long term commitment to improving water quality. The report offers recommendations for future work needed in its implementation section (TMDL pp. 41-45).

Assessment: Addressed, though not required.

11. Public Participation

EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each State/Tribe must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 C.F.R. § 130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval must describe the State/Tribe's public participation process, including a summary of significant comments and the State/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. § 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

RI DEM provided a comment period from June 26, 2004 to July 23, 2004. Notice of this comment period and a public meeting to present the draft TMDL to stakeholders and the general public on June 26, 2004 was sent via faxes and letters to the affected communities and others, and posted to a number of list serves on January 29, 2004. RI DEM also issued a press release on February 3, 2004, the date the draft document was made available, on RI DEM's website. The public meeting was well attended by area residents and members of a non-profit group (Salt Ponds Coalition) with a particular interest in the Ponds. RI DEM received no public comments during the comment period. RI DEM has provided EPA with copies of all submitted comments and the Department's responses as an attachment to the final TMDL submission. RI DEM also spoke at two informal seminars hosted by the Salt Ponds Coaltion in 2003.

Assessment: EPA New England has reviewed all comments and RI DEM's responses to comments. EPA concludes that RI DEM involved the public during the development of the TMDL for the *Green Hill and Ninigret Ponds watershed*, has provided adequate opportunities for the public to comment on the TMDL, and has provided reasonable responses to the comments received.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document, and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to EPA must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the water body, the pollutant(s) of concern, and the priority ranking of the water body.

Comment: A letter with appropriate information was included with the final submission.

APPENDIX
(Tables reprinted from the submitted TMDL by permission of RI DEM)

Table 5.5 Percent reductions required in Green Hill and Ninigret Pond.

Station	Weighted geometric mean fecal coliform concentration fc/100 ml	Percent reduction needed to meet 14 fc/100 ml	Weighted average 90th percentile value fc/100 ml	Percent reduction needed to meet 14 fc/100 ml	Greatest percent reduction
GA11-11+	7	0%	28	0%	0%
GA11-12+	7	0%	23	0%	0%
GA11-13+	6	0%	24	0%	0%
GA11-14	8	0%	74*	34%	34%
GA11-14A	10	0%	82*	40%	40%
GA11-14B	5	0%	23	0%	0%
GA11-15	4	0%	17	0%	0%
GA11-16	17.4*	20%	149*	67%	67%
GA11-16A	7	0%	39	0%	0%
GA11-16B	5	0%	35	0%	0%
GA11-17	4	0%	19	0%	0%
GA11-18	5	0%	15	0%	0%
GH24	20*	30%	110*	55%	55%

*Indicates violations of state water quality standards

+ These sampling sites are for Ninigret Pond. Bacteria levels at additional sites N13 – N15 in Ninigret Pond showed exceedances of the criteria. These sites will be investigated and abated as part of RI DEM's TMDL implementation efforts.

Table 5.6 Percent reductions required in Factory and Teal Pond Stream.

Station	Weighted geometric mean fecal coliform concentration (fc/100 ml)	Percent reduction needed to meet 20 fc/100 ml	Weighted average 90th percentile values (fc/100 ml)	Percent reduction needed to meet 200 fc/100 ml	Greatest percent reduction
FB01	13.6	0%	43	0%	0%
FB02	102*	80%	1,649*	88%	88%
FB03	838*	98%	4,406*	95%	98%
FB04	702*	97%	2,723*	93%	97%
FB05	610*	97%	2,748*	95%	97%
FB06	1691*	99%√	6,471*	99%√	99%√
FB07	290†*	93%	2000†*	90%	93%
TBa	441*	95%	1,065*	86%	95%
TB00	112†*	82%	752†*	73%	82%
TB01	285*	92%	1,129*	82%	92%
TB02	954*	98%	4,089*	95%	98%
TB03	571*	98%√	1,968*	90%√	98%√

†Indicates dry weather values only.
*Indicates violations of state water quality standards
√Indicates reductions needed to meet stricter standard of 14 fc/100ml and 49 fc/100ml.

Table 5.7. Summary of load and wasteload contributions for stations requiring a percent reduction to meet standards.+

Waterbody or Area	Station	Total Reduction (from Tables 5.5 and 5.6)	Point Source ID	Impervious area/Total area (ha)	Estimated wasteload contribution to total load (WLA)	Estimated load contribution to total load (LA)
Factory Pond Stream	FB06	99%	DP03, DP04, DP05 and other conveyances draining Green Hill Beach Road and Matunuck Schoolhouse Road	4.14 / 286	1.5%	98.5%
Teal Pond Stream	TB03	98%	No identified point sources	--	--	98%
Green Hill Pond	GA11-14	34%	No identified point sources	--	--	34%
	GA11-14A (Allens Cove)	40%	DP02, DP06, and DP07	2.63 / 38	7%	93%
	GA11-16	67%	No identified point sources	--	--	67%
	GH24 (GA11-14C)	55%	No identified point sources*	--	--	55%

* Unnamed Brook #2 identified as a nonpoint source potentially affecting GH24
+ For Ninigret Pond, please notes in Table 5.5, above, for sampling stations GA 11-11, GA11-12, and GA11-13

Data for entry in EPA's National TMDL Tracking System

TMDL Name	**Green Hill and Ninigret Ponds Watershed**
Number of TMDLs*	4
Lead State	Rhode Island (RI)
TMDL Status	Final
Pollutant ID	41 (Pathogens)
TMDL End Points/ Water body codes and names	Class SA (14 fecal coliform/100 ml: 49 fecal coliform/100 ml): Green Hill Pond RI0010043E-02 Ninigret Pond RI0010043E-04B Class A (20 fecal coliform/100 ml: 200 fecal coliform/100 ml): Factory Pond Stream RI0010043R-02 Teal Pond Stream RI0010043R-04
TMDL Type	Point & Nonpoint Source
List ID (from system)	See above
Impairment ID (from system)	Shellfishing, Primary Contact Recreation
Cycle (list date)	2002 and 2004
Establishment Date (approval)	February 16, 2006
EPA Developed	No
Towns affected*	South Kingstown and Charlestown, RI