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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

December 10, 1999

Robert Smith, Chief
Bureau of Water Management
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 01606

Dear Mr. Smith:

Thank you for the submittal of **A Total Maximum Daily Load Analysis for Rainbow Brook and Seymour Hollow Brook, Windsor and Windsor Locks, Connecticut** for propylene and ethylene glycols. This water is included on Connecticut's 1998 303(d) list and was targeted for TMDL development by April 1st, 2000. This Total Maximum Daily Load (TMDL) analysis was developed to address the aquatic life support and aesthetic impairments in Rainbow and Seymour Hollow Brooks due to deicing/anti-icing chemicals used at Bradley International Airport (BIA). Also, this TMDL is proposed for propylene and ethylene glycols as indicator pollutants to address the toxicity of unknown additives to glycol based deicing/anti-icing chemicals.

The U.S. Environmental Protection Agency (EPA) hereby approves Connecticut's final TMDL analysis for Rainbow and Seymour Hollow Brooks, received by EPA on October 19th, 1998. EPA has determined that the Rainbow Brook and Seymour Hollow Brook TMDL meets the requirements of §303(d) of the Clean Water Act (CWA), and EPA's implementing regulations (40 CFR Part 130).

The submittal includes all the required elements of a TMDL; loading capacity, load allocations, waste load allocations, margin of safety seasonal variation, and public participation process. Consistent with EPA policies, the TMDL also includes an implementation plan which addresses the primary sources contributing to the impairment. In addition, CT DEP has provided reasonable assurances that the necessary controls will be implemented in a timely manner.

We appreciate the efforts by Christopher Bellucci and Elizabeth Wikfors to complete this TMDL. They have provided a comprehensive and informative TMDL report, and it continues to be a rewarding experience to work with them. We appreciate the challenges associated with this TMDL to balance public safety and environmental issues, and recognize that it is a milestone in the efforts of the citizens of Windsor and Windsor Locks to protect their local natural resources.

My staff and I look forward to continued cooperation with CT DEP in exercising our shared responsibility to implement the requirements under Section 303(d) of the CWA. If you have any questions or comments regarding the attached approval documentation, please contact me at (617) 918-1500, or Jeanne Voorhees at (617) 918-1686.

Sincerely,

Linda M. Murphy, Director
Office of Ecosystem Protection

Enclosure

cc: Christopher Bellucci, CT DEP
Elizabeth Wikfors, CT DEP
Tom Morrissey, CT DEP
Ron Manfredonia, EPA
Ann Williams, EPA
Lynne Hamjian, EPA
Roger Janson, EPA

TMDL: Seymour Hollow Brook and Rainbow Brook, Windsor and Windsor Locks, CT
Effective Date: December 10, 1999

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.

The Connecticut Department of Environmental Protection (CT DEP) submitted the final ***Total Maximum Daily Load Analysis for Rainbow Brook and Seymour Hollow Brook, Windsor and Windsor Locks, Connecticut****, to the Environmental Protection Agency-New England (EPA-New England) on October 19, 1999 to request EPA's review and approval. The final TMDL submittal consists of the submittal letter, public notice announcement, interdepartmental message (September 7, 1999), TMDL analysis, and Consent Order(WC5257). The following pages provide EPA-New England's supporting documentation justifying the approval of this TMDL under the statutory and regulatory requirements in §303(d) of the Clean Water Act and 40 CFR Part 130.*

Rainbow Brook and Seymour Hollow Brook are located in the northern section of central Connecticut in Windsor and Windsor Locks. These brooks drain the south side of Bradley International Airport (BIA), and are tributaries to the Farmington River. The headwaters for the brooks originated in wetlands that were largely filled and graded for the airport's construction.

Rainbow Brook and Seymour Hollow Brook were identified by the Connecticut Department of Environmental Protection (CTDEP) as impaired and were included on the 1998 303(d) list of impaired surface waters (CT DEP, 1998). The brooks' impaired designated uses include aquatic life use (partially supported) and aesthetics (fully non-supported). The primary cause of impairment has been identified as the ethylene and propylene glycols, and associated chemical additives, used in deicing/anti-icing activities at BIA. This TMDL is proposed for propylene and ethylene glycols. Since ethylene glycol has been banned from use at BIA (see TMDL, Appendix I, pg AI-3), propylene glycol has become the primary pollutant of concern in the brooks. Propylene glycol will also be used as an indicator pollutant to address the toxicity of unknown additives to glycol based de-icing/anti-icing chemicals.

The Rainbow Brook and Seymour Hollow Brook TMDL represents a resolution between competing safety requirements at BIA and water resource protection. It is a milestone in the citizens of Windsor's efforts, initiated in late 1987, to address the water quality impairments in these brooks. Since this water quality impairment has been under consideration for approximately ten years, the TMDL represents a final step toward resolving water quality impairments due to deicing/anti-icing activities at BIA. This TMDL represents a cooperative effort among local citizens, CT DEP, CT Department of Transportation, EPA-New England and BIA to address water quality impacts.

1. Description of Waterbody, Pollutant of Concern, Pollutant Sources and Priority Ranking

The TMDL analytical document must identify the waterbody as it appears on the State/Tribe's 303(d) list, the pollutant of concern and the priority ranking of the waterbody. 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.

A. Surface Water, Pollutant of Concern and Priority Ranking

Rainbow Brook and Seymour Hollow Brook were identified by the Connecticut Department of Environmental Protection (CTDEP) as impaired and were included on the 1998 303(d) list of impaired surface waters (CT DEP, 1998). They were prioritized as surface waters requiring the development of a TMDL by April 2000. The brooks' impaired designated uses include aquatic life use (partially supported) and aesthetics (fully non-supported). The primary cause of impairments has been identified as the ethylene and propylene glycols, and associated chemical additives, used in deicing/anti-icing activities at BIA. While pure forms of ethylene and propylene glycols are relatively nontoxic, formulated ethylene and propylene glycol deicer fluids are more toxic (see TMDL document, page 11). Since the actual chemical additives in glycol based deicer fluids are proprietary information the additives responsible for increased toxicity have been difficult to determine. Thus, the TMDL is proposed for ethylene and propylene glycols which will serve as indicator pollutants to address the toxicity of unknown chemical additives in the glycol based deicing/anti-icing fluids. Since ethylene glycol has been banned from use at BIA, propylene glycol has become the primary pollutant of concern in the brooks.

EPA-New England has determined that the TMDL identifies the surface waters, the pollutant of concern and priority ranking as they appear on the 1998 303(d) list.

B. Point Sources: Description, Location and Magnitude

As stated in the TMDL, point sources of ethylene and propylene glycols only originate from the deicing/anti-icing practices at BIA. The drainage pattern at BIA dictates which stream will receive uncollected deicing/anti-icing fluids and storm water runoff. The majority of deicing/anti-icing activities occurs on the southern side of BIA, and drains to Rainbow and Seymour Hollow Brooks (see drainage areas 2 and 3, Figure 2 in the TMDL). Although deicing/anti-icing activities also occur in the eastern and western portions of the BIA property draining to tributaries to Stony and Spencer Brooks, elevated levels of glycols were not present in tested samples and impairments were absent in these brooks.

The magnitude of the pollution/pollutants in Seymour Hollow and Rainbow Brooks has steadily decreased. In late 1988, and early 1989, conditions in the brooks were impaired such that visible impacts resulted in green coloring and offensive odors. Since the late 1980s conditions have improved with the advent of an interim glycol collection program in 1991/1992 which resulted in capturing approximately 12-15% of total glycols applied to aircrafts. During the 1993/1994 winter season, a temporary central deicing/anti-icing location was established to concentrate the flow of glycols to one area and facilitate glycol recovery. Subsequent improvements to the temporary central deicing/anti-icing location occurred during 1993 through 1996, which ultimately resulted in improving the glycol collection rate to approximately 50%.

C. Nonpoint and Natural Background Sources: Description, Location and Magnitude
Nonpoint and natural background sources of ethylene or propylene glycols are not known, or suspected, to exist.

D. Assumption(s)
It was assumed in the development of this TMDL that by controlling glycols, the associated chemical additives in the deicing/anti-icing fluids would also be captured by the Remote Deicing Facility and other control actions specified in the TMDL and required in the 1998 Consent Order WC5257(CO) between CT DEP and CT DOT. Thus, any uncertainty associated with the toxicity of unknown chemical additives is assumed to be addressed by not allowing deicing/anti-icing chemicals, and additives, to enter the brooks.

Glycols are known to exert high BOD, although glycol breakdown occurs at slower rates during colder weather when deicing/anti-icing occurs. It was also assumed that the reduction and elimination of direct discharges of glycols to the brooks would also address the potential impacts of high BOD loading associated with glycols on instream DO levels. Additional assurances that these assumptions are valid will be provided by the monitoring terms for BOD_5 in the CO.

An assumption was made that, since ethylene glycol has been prohibited for use at BIA for deicing/anti-icing activities, it will no longer pose water quality impacts to Seymour Hollow Brook and Rainbow Brook.

EPA-New England has determined that the TMDL provides the required information identifying and describing the 1) surface water, 2) pollutant of concern, and 3) priority ranking. The TMDL also appropriately identified and described the point sources including their magnitude and location. Important assumptions made in the analysis are adequately presented and supported in the TMDL.

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 waterbody, 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.

A. Water Quality Standards: Designated Uses(s), Criteria, and Antidegradation

Rainbow Brook and Seymour Hollow Brook are classified as B/A by CT's Water Quality Standards. The B/A classification means that the brooks currently meet the Class B criteria and uses, and that the water quality goal is the achievement of Class A criteria and the attainment of designated uses. The designated uses specified for Class A surface waters include potential drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other legitimate uses, including navigation. As discussed above, the brooks' impaired designated uses include partially supported aquatic life use and fully non-supported aesthetics.

Currently, there are no numeric aquatic life criteria for ethylene or propylene glycols. However, CT WQS do not allow chemical constituents in concentrations that are harmful to the aquatic environment. As stated in the TMDL (see CT WQS, standard number 13);

> *"Surface waters and sediments shall be free from chemical constituents in concentrations or combinations which will or can be reasonably be expected to result in acute or chronic toxicity to aquatic organisms or impair the biological integrity of aquatic or marine ecosystems outside of any allocated zone of influence or which will or can be reasonably expected to bioconcentrate or bioaccumulate in tissues of fish, shellfish, and other aquatic organisms to levels which will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors, or health risks to human consumers of aquatic life."*

CT DEP set a numeric target of zero for propylene and ethylene glycols (i.e. zero discharge of these glycols) in part because during winter storm events, storm water runoff from BIA is the major water source in these brooks, and therefore, little dilution is available. A target of zero also ensures that toxicity associated with chemical additives will not occur. Studies demonstrate that the unknown chemical additives in deicing agents increase toxicity. Since the identity and quantity of the chemical additives are considered proprietary, and therefore, unknown, a target of zero provides assurance that toxicity from such additives will not occur. Overall, CT DEP established a target of zero for these glycols because efforts to achieve this goal are expected to result in complete attainment of the designated uses, and will achieve the WQS criterion of "no toxics in toxic amounts." Also, setting the target to zero will eliminate the aesthetic impacts associated with deicing/anti-icing fluids; in particular, the offensive odors and green colors. Finally, a zero discharge of glycols will have the added benefit of ensuring that adequate instream DO levels are maintained.

This TMDL is consistent with CT DEP's antidegradation standards and policy because the results of the TMDL are expected to achieve complete attainment of the designated uses and WQS, and will not interfere with existing uses.

EPA-New England has determined that the TMDL adequately describes the applicable water quality standards, designated uses, and criteria. The TMDL also identifies and describes the derivation of the target from narrative criteria.

EPA-New England supports the State's use of glycols as surrogates for toxic additives in deicing/anti-icing fluids because it is an appropriate and reasonable approach given the lack of specific information regarding the additives themselves. Further, the state's approach of establishing a target of zero is very reasonable in this circumstance.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in EPA guidance, a TMDL identifies the loading capacity of a waterbody 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 waterbody'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 waterbody 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 waterbody 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.

CT DEP set the Loading Capacities (LC) to zero for ethylene and propylene glycols. Setting the LC to zero for ethylene glycol is consistent with a BIA policy change required by CT DOT prohibiting all BIA tenants from using ethylene glycol for deicing/anti-icing activities as of January 1, 1998 (see TMDL, page 13 and Appendix I, pg AI-3).

A conservative approach was employed to establish the relationship between the numeric target and pollutant sources. As discussed in the TMDL, literature indicates that there is an associated higher toxicity with the chemical additives in glycol based deicing/anti-icing agents. Given that the majority of stream flow during winter storm events is storm water runoff from BIA containing the deicing/anti-icing agents, and the lack of available dilution, CT DEP determined that the most effective means to ensure attainment of water quality standards was to set the numeric target to zero. Overall, CT DEP established a target of zero discharge of these glycols because efforts to achieve this goal are expected to result in complete attainment of the designated uses (aquatic life use and aesthetics), and compliance with water quality standards. CT DEP expects that when all the control actions in the CO are implemented, no glycols will be discharged to Seymour Hollow and Rainbow Brooks. A detection limit of 10 mg/l will be used for monitoring glycols. Achieving a nondetect will result in a significant reduction from past instream levels.

For example, the TMDL states that ethylene glycol levels were reported as high as 55,000 mg/l in February 1989 (see TMDL document, page 4). Thus, achieving the detection limit represents a 99.98 % reduction.

The critical condition for this TMDL occurs during winter storm events, when the brooks receive the most storm water runoff containing deicing/anti-icing chemicals. It is also a period in which little dilution is available for assimilating the poor quality of the storm water runoff.

EPA-New England agrees with the conservative approach CT DEP has used to set the LC to zero for both ethylene and propylene glycols because it is expected to result in the attainment of water quality standards. We agree that setting the LCs to zero for propylene and ethylene glycols is appropriate and reasonable because little dilution is available in the brooks, and it will ensure that toxicity associated with chemical additives will not occur. Ultimately, it is expected that setting LCs to zero will result in the complete attainment of the designated uses, and will achieve the WQS criterion of "no toxics in toxic amounts." Critical conditions were appropriately identified for this TMDL because deicing/anti-icing activities occur during winter storms, when the brooks receive the most storm water runoff containing deicing/anti-icing fluids, and little dilution is available.

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.

Nonpoint and natural background sources of ethylene and propylene glycol are not known, nor suspected, to exist. Thus, the LAs for these glycols are set to zero.

EPA-New England agrees with setting the LA to zero for the glycols, since no nonpoint or natural background sources of the glycols are known, or suspected, to exist.

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.

The WLAs for ethylene and propylene glycol were set to zero. The only point sources (storm water pipes) of ethylene and propylene glycols originate from the deicing/anti-icing practices at BIA. Ethylene glycol has already been banned from use at BIA (see TMDL page 13; and, Appendix I, pg AI-3). CT DEP fully expects that all point sources of propylene glycol will be eliminated with the development of a centralized remote deicing facility and separate collection system designed to collect propylene glycol, and associated chemical additives. Therefore, these designs are expected to prevent glycols and chemical additives from entering the brooks. Assurances for the elimination of all point sources is provided under the mandates defined in the CO.

EPA-New England agrees that setting the WLA to zero for ethylene and propylene glycols is reasonable because it is a conservative approach addressing the toxicity associated with unknown deicing/anti-icing chemical additives, and it ensures that WQS will be met, especially since the only known pollutant source is the deicing/anti-icing activities at BIA. Additionally, it appears likely that these WLAs will be attained. For ethylene glycol, point sources have been eliminated through a policy change at BIA prohibiting all tenants from using ethylene glycol for deicing/anti-icing activities as of January 1, 1998 (see TMDL page 13; and, Appendix I, pg AI-3). Point sources of propylene glycol are expected to be removed with the development of a centralized remote deicing facility and separate collection system, and thus, prevent deicing/anti-icing fluids from entering the brooks.

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.

The MOS is implied for both ethylene and propylene glycol. The TMDL is highly conservative by allocating zero to ethylene and propylene glycols to the WLA and LA, and ultimately the LC. Additionally, the uncertainty associated with the toxicity of any unknown additives in the deicing/anti-icing fluids is addressed by preventing these fluids, and thus associated additives, to enter the brooks.

EPA-New England agrees that setting the MOS to zero is adequate and sufficient to ensure the attainment of WQS because the TMDL is very conservative with LC s, WLAs and LAs set at zero.

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)).

Deicing/anti-icing practices occur during cold weather typically ranging from October to April. However, rather than limit the TMDL to the winter season, the TMDL for propylene and ethylene glycols applies during the year. This approach extends the MOS to account for variations in weather patterns.

EPA-New England concludes that the seasonal variation is adequately accounted for in the TMDL and will be protective of all seasons, including any variations in weather patterns.

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.

Under the terms of the Consent Order, specific receiving water and storm water monitoring is required at BIA. Eight locations in Rainbow Brook and Seymour Hollow Brook will be monitored for ammonia, BOD_5, ethylene glycol, propylene glycol, ethyl alcohol, formaldehyde, isopropyl alcohol, dissolved oxygen, pH. Frequency of monitoring will be two winter events per year. Eight storm water locations will be monitored during four storm events each year, two of which must occur during deicing/anti-icing activities. Parameters to be measured at the storm water locations include the same parameters listed above for the brooks in addition to fifteen additional parameters, including an annual acute toxicity test (see Table 4 in the TMDL). The terms of the CO also requires storm water monitoring at sites that drain to DeGrayes Brook, Stony Brook, and Spencer Brook. Monitoring is required to continue until all actions of the CO are completed.

In addition, if the monitoring results warrant, CT DEP will continue to monitor according a statewide rotating basin cycle, or with greater frequency if necessary. CT DEP plans to examine fish community structure, and anticipates using it as the primary metric to measure progress towards attaining aquatic life use support, and achieving WQS.

EPA-New England supports the conditions of this monitoring approach because it will adequately evaluate the efficacy of the controls and adequacy of the TMDL.

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.

This TMDL offers an implementation plan through the provisions of the CO and NPDES permit.

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 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."

The CO and NPDES permit are both legally enforceable and offer reasonable assurances that controls will be implemented, and WQS will be met.

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.

A thorough public participation process for this TMDL has occurred. In fact, it was the citizens of Windsor who first reported the pollution problems during the late 1980, and who filed a lawsuit against CT Department of Transportation under Section 505 of the Clean Water Act for discharging pollutants into surface waters without a permit. Citizens were given the opportunity, for a period of 30 days, to offer comments on the TMDL, public noticed in the Hartford Courant on September 1, 1999. One comment was received, via an interdepartmental message from CT DOT to CT DEP (September 7, 1999), which supported the TMDL analysis with the understanding that if numeric critieria were developed, the TMDL would be modified to reflect the new criteria. CT DEP did not prepare a response to CT DOT because it was in support of the TMDL analysis. EPA - New England agrees that the adoption of new criteria may lead to a modification of the TMDL. In that event, it is CT DEPs responsibility to ensure that if numeric criteria are developed for glycols, or the chemical additives in the deicing/anti-icing fluids, any changes to the TMDL reflecting the new criteria will continue to achieve the attainment of WQS.

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 waterbody, the pollutant(s) of concern, and the priority ranking of the waterbody.

The submittal letter identified the TMDL as final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval.

References

Lonergan, M., 1999. **State of Connecticut Interdepartmental Message to Ms. Elizabeth Wikfors, September 7, 1999**; RE: Total Maximum Daily Load Analysis of Rainbow Brook and Seymour Hollow Brook.

State of Connecticut, Department of Environmental Protection, 1997. **Connecticut Water Quality Standards**. Water Management Bureau.

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State of Connecticut, Department of Environmental Protection, 1998. **State of Connecticut, Department of Environmental Protection v. State of Connecticut, Department of Transportation, Consent Order No. WC 5257, DEP/WPC No. 165-018**, issued as a final order on September 23, 1998.

State of Connecticut, Department of Environmental Protection, 1999. **A Total Maximum Daily Load Analysis for Rainbow Brook and Seymour Hollow Brook, Windsor and Windsor Locks, Connecticut**. Bureau of Water Management, Standards and Planning Division.