UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 20 2007

FEB 14 2007

REPLY TO THE ATTENTION OF:

WW-16J

Brad Moore, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road North
St Paul, MN 55155-4194

Dear Mr. Moore:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Load (TMDL) for chloride in Shingle Creek in Minnesota. The Minnesota Pollution Control Agency's (MPCA's) TMDL addresses the aquatic life use impairment in the Shingle Creek watershed in Minnesota. Based on this review, U.S. EPA has determined that Minnesota's TMDL addressing one impairment meets the requirements of Section 303(d) of the Clean Water Act and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, U.S. EPA hereby approves one TMDL for Shingle Creek in Minnesota. The statutory and regulatory requirements, and U.S. EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Minnesota's effort in submitting this TMDL and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

Jo Lynn Traub
Director, Water Division

Enclosure

cc: Faye Sleeper, MPCA

TMDL: Shingle Creek, Minnesota
Date: FEB 14 2007

DECISION DOCUMENT FOR APPROVAL OF THE SHINGLE CREEK, MINNESOTA CHLORIDE TMDL

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional 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. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

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

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2, below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This 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 spatial extent of the watershed in which the impaired waterbody is located;
(2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
(3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
(4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and
(5) an 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; chlorophyll a and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:
The Shingle Creek Watershed is located in central Minnesota, in the Minneapolis metro region, and flows through Hennepin County. The TMDL submittal addresses the one stream reach in the watershed which was listed on the Minnesota Pollution Control Agency (MPCA) 2006 303d list (Page 1-2 of the TMDL submittal). Table 1, below, lists the information about the reach. The reach was listed as impaired for aquatic life use due to high levels of chlorides. The watershed is approximately 44.5 square miles, and the mainstem of Shingle Creek is approximately 11 miles in length (Page 1-1 of the TMDL submittal).

A few small tributaries to the Shingle Creek are present in the watershed, including Ryan Creek, Bass Creek, and Pike Creek (Page 2-1 and Figure 4 of the TMDL submittal). These tributaries were also included in the TMDL development.

Topography and land use: Section 3.2 of the TMDL submittal details the land use of the watershed. The area is urbanized, with over 80% residential/commercial/industrial, and a small portion parks or undeveloped (Table 3.1 of the TMDL submittal). The population is estimated at over 200,000. There are nine municipalities in the watershed; Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale. These entities created a joint powers organization, the Shingle Creek Watershed Management Commission (SCWMC) whose responsibilities include controlling run-off, stormwater management, preventing flooding, and enhancing use of the creek (Section 3.1 of the TMDL submittal).

Pollutant of concern: In this TMDL submittal, MPCA has identified Shingle Creek watershed for violations of the chloride water quality standard. MPCA has performed sampling of the watershed for chlorides, and noted numerous exceedences of the chlorides water quality standard, generally during the winter months, strongly suggesting that the chlorides are due to winter salt use for road de-icing. Research by MPCA indicates that as chloride levels increase, there is a decrease in both plant and invertebrate diversity (Section 1.2 of the TMDL).

Pollutant point sources: As MPCA has indicated in the TMDL submittal, the Shingle Creek watershed is impaired by both point and non-point sources. The point sources include nine NPDES individually permitted facilities (Table 5.1 of the TMDL), which discharge into the Shingle Creek watershed. These facilities do not discharge chloride, and are therefore not considered by MPCA to be sources of chlorides in the watershed (Section 5.1 of the TMDL submittal).

Each of the cities has a Municipal Separate Storm Sewer System (MS4) permit (Section 5.1 of the TMDL submittal). Minneapolis has an individual permit, and the other eight cities are covered under the Phase II General Stormwater permit. In addition, Hennepin County and the Minnesota Department of Transportation (MnDOT) are covered under the Phase II general permit. MPCA determined that there are no Confined Animal Feeding Operations (CAFO) in the watershed.

Pollutant nonpoint sources: Section 5.2 of the TMDL submittal states that MPCA has identified potential nonpoint sources as including:

- Salt piles – run-off from salt piles will contain chlorides.
- Road de-icing – run-off from the application to the large road network in the watershed results in chlorides entering the waterbody. Over 1,300 miles of road are maintained in the watershed (Table 5.5 of the TMDL).
- Private de-icing – including parking lots, driveways, and airports.
- Groundwater discharge – this would include the salt applications that enter the groundwater system and eventually discharge into a waterbody.

Population and growth trends: MPCA noted that the population of the watershed is expected to grow slowly in the next 15 years (Section 8.5 of the TMDL submittal). Most of the land in the watershed has been developed, and the expected growth is not expected to add significantly to the road network in the watershed. For this reason, MPCA made no changes to the allocations based upon future growth, instead choosing to provide for future growth in the implementation efforts.

Priority ranking: Minnesota's 2006 303(d) list includes a projected schedule for TMDL completions. This schedule reflects the state's priority ranking of impaired waters. The TMDL for the Shingle Creek waterbodies was scheduled for completion in 2006.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this first element.

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

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comment:
Section 2.0 of the TMDL submittal describes designated uses and numeric criteria applicable to this watershed.

Use Designation: MPCA has numerous designated uses that apply to the Shingle Creek watershed. The designated use addressed by this TMDL submittal is for aquatic life use (MN R. 7050.0200).

Numeric Standards: MN R. 7050.0222 establishes the water quality standards (WQSs) for chloride for this waterbody. The chronic standard is 230 mg/l based upon a 4-day average, and an acute standard of 860 mg/l for a 1-day duration.

Targets: The target for this TMDL is the WQS for chloride, the chronic standard of 230 mg/l (4-day average) and the acute WQS for chloride of 860 mg/l for a 1-day period. To determine loads, the chronic portion of the WQS (230 mg/l) was chosen by MPCA, to best address the ongoing chloride loadings in the watershed. The EPA concurs with this choice.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Comment:
Loading capacity: MPCA determined loading capacities using the Load Duration Curve method (Section 7 of the TMDL submittal). Using this method, daily loads are developed based upon the flow in the waterbody. The loading capacities were determined for five flow regimes; High, Moist, Mid, Dry, and Low (Table 2, below). For example, the High flow regime means the highest 10% of all flows at a gage. Table 2, below, lists the loading capacities for each of the flow regimes.

Method for cause and effect relationship: The Load Duration Curve (LDC) approach was used for developing this TMDL submittal, with an explanation in Section 7.0 and Appendix D of the TMDL submittal. A very simplified explanation is provided below.

1. Flow data - First, continuous daily flow data are required, and were provided by the USGS gage 05288705, which is located at Queen Avenue, at the mouth of Shingle Creek. The data reflect a range of natural occurrences from extremely high flows to extremely low flows. Appendix A and D of the TMDL submittal contain further information on the flow in Shingle Creek.
2. Water Quality data - This dataset is the chloride data from 2002-2003. This data was gathered by MPCA and the Shingle Creek Watershed Project, a local watershed group (Section 7.3 of the TMDL submittal).
3. Load Duration Curves (LDCs)(Section 7 and Appendix D of the TMDL submittal) - These plots are derived from the flow data and water quality data described above. Existing monitored water pollutant loads, represented by the diamond-shaped points on the plot, are compared to target loads, the water quality standard line. If the existing loads are below (less than) the target line, no reduction needs to occur. Conversely, if the existing loads are above (greater than) the target load, a reduction is necessary to reach the target. These graphs allow MPCA to determine the flow conditions under which the exceedences occur, and where. Most of the LDCs in Appendix D of the TMDL show that the exceedences occur during winter time under both wet weather events (i.e., flows in the High and Moist range) and dry weather (flows in the Dry and Low range). The spring graphs show very few exceedences, and those are very close to the WQS. The summer graphs show no exceedences. By knowing the flow conditions under which exceedences are occurring, MPCA can focus implementation activities on those sources most likely to contribute loads.

The TMDL submittal presents LDCs for several sites along Shingle Creek, based upon the season. Section 7 of the TMDL submittal includes an analysis of the LDC for the mouth of Shingle Creek, which is considered by MPCA to be the most representative of the watershed. Percent reductions were calculated to determine the load reductions needed to meet the WQS. As expected, the winter reductions were the greatest, particularly during higher flows, with a maximum reduction of 71% (Section 7.3.3 of the TMDL submittal). The daily loading capacities were determined for the 5 flow regimes (Table 2, below).

MPCA's chloride TMDL approach is based upon the premise that loads vary depending upon the flow, and different sources may contribute loads under different flow conditions (Section 7 of the TMDL submittal). The LDC plots show under what flow conditions the water quality exceedences occur. Those exceedences at the right side of the graph occur during low flow conditions, such as from groundwater discharge of chloride-laden water and run-off from snowmelt from warmer winter days (e-mail from Timothy Larson, MPCA 1/29/07); exceedences on the left side of the graphs occur during higher flow events, such as storm runoff and spring snowmelt. MPCA has reviewed these load duration curves, and believes that chloride sources are attributed to both wet-weather and dry-weather events.

EPA agrees with this review. Using the Load Duration Curve approach allows MPCA to determine which implementation practices are most effective for reducing chloride loads based on flow magnitude. For example, if loads are significant during storm events, implementation efforts can target those best management practices (BMPs) that will most effectively reduce storm water runoff. This allows for a more efficient implementation effort. This TMDL ties directly into Minnesota's numeric water quality standard for chloride. The target for this TMDL is the water quality standard, and therefore meeting this loading capacity should result in attainment of water quality standards.

The Load Duration Curve is a cost-effective TMDL approach, to address the reductions necessary to meet WQS for chloride. The approach also aids in sharing the responsibility for chloride reductions among various stakeholders in the TMDL watershed, which encourages collective implementation efforts.

Weaknesses of the TMDL analysis are that Non-Point Source (NPS) load allocations were not assigned to specific sources within the watershed, and the identified sources of chloride were assumed based on the data collected in the watershed, rather than determined by detailed monitoring and sampling efforts. Moreover, specific source reductions were not quantified. However, EPA believes the strengths of the State's proposed TMDL approach outweigh the weaknesses and that this methodology is appropriate based upon the information available.

Critical conditions: MPCA identified winter flow events as the critical condition for pollutant loadings, particularly during snowmelt and storm events. This is when salt spreading is most common, and runoff the greatest (Section 8 of the TMDL submittal). By using the LDC method, the TMDL will account for the loads from these critical conditions. MPCA will be able to determine which flow regime (dry, moist, wet, etc.) is best targeted for implementation activities.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this third element.

4. Load Allocations (LAs)

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

Comment:
Load Allocation: Load allocations were determined for each of the flow regimes for Shingle Creek. This load allocation represents the groundwater discharge portion of the load, as all the land in the watershed is covered under stormwater permits and therefore addressed under the WLA section of this document (Section 8.3.1 of the TMDL submittal). Table 2, below, gives the LAs. However, MPCA will further refine any non-point sources and impacts during and after implementation plan development (Section 10 of the TMDL submittal).

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comment:
Wasteload Allocation: Wasteload allocations are discussed in the Section 8 of the TMDL submittal. Table 2, below, contains the WLAs for the watershed, based upon the flow regime. MPCA has determined that a reduction of 71% will result in meeting the WLA for all flow regimes. The TMDL submittal indicates that while there are several individually-permitted facilities in the Shingle Creek watershed, the facilities do not discharge chlorides (Section 5.1 of the TMDL submittal). The WLA applies to the Phase II stormwater permittees; Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale, as well as Hennepin County and the Minnesota Department of Transportation (MnDOT). MPCA is not required to determine WLAs for each city; however, current loadings were broken down into subcategories to assist in determining implementation activities (Section 8.2 of the TMDL submittal). No CAFO facilities were identified in the watershed. The WLA for straight pipe discharges is zero.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this fifth element.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) 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's 1991 TMDL 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.

Comment:
MPCA stated that the MOS is implicit (Section 8.3.2 of the TMDL submittal). The TMDL calls for a 71% reduction of chloride during all conditions. Much of the runoff results from the melting of roadside snow from previous snowfall events and therefore previous road salt applications. The 71% reduction was determined by MPCA based upon the highest single exceedence of the WQS. This 71% is not the direct result of a 71% excessive application of chloride; rather, it represents the cumulative impact of multiple events (i.e., previous unmelted snow events). However, since the cumulative impacts cannot be quantified at this time, MPCA believes using the 71% target is a conservative assumption that overestimates the chloride reduction needed to achieve WQSs. This compounding reduction (71% during all conditions) should insure achieving water quality standards during future critical conditions (winter snowmelt and runoff).

EPA finds that the TMDL submittal from MPCA contains an appropriate MOS satisfying all requirements concerning this sixth element.

7. Seasonal Variation

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

Comment:
The Seasonal Variation Section of the TMDL addresses seasonality by using the LDC method, which analyzes impacts based upon flows, which accounts for seasonal variations in flows and thus in loads. Therefore all the standards will be met regardless of the season or flow events. MPCA also analyzed the data based upon the seasons (winter-spring-summer) to determine the impacts of sources other than de-icing activities.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this seventh element.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. § 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA's August 1997 TMDL guidance also directs Regions to work with States to achieve

TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source - only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:
There are several reasonable assurance actions that will be taken to help implement the TMDL. They are in the Reasonable Assurance Activities Section (Section 11) of the TMDL submittal and include, briefly:

- National Pollutant Discharge Elimination System (NPDES) permitted dischargers - MPCA's NPDES permit program requires Phase II stormwater permittees to identify best management plans (BMPs) and measurable goals to control stormwater in the watershed.
- Watershed projects – The Shingle Creek Watershed Management Commission (SCWMC) was formed under Minnesota statute to plan and protect water quality in the watershed. A Second Generation Implementation Plan has been developed, and work is on-going to identify improvements in chloride control.

EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:
The Monitoring Section of the TMDL submittal (Section 11.5) states that the SCWMC has agreed to take the lead on monitoring and tracking the effectiveness of implementation activities in the watershed, as part of the Second Generation Implementation Plan. Ongoing monitoring has been conducted at two sites, and two additional sites have been added (Section 10.3.8 of the TMDL submittal). An annual evaluation will be performed on the sampling data, to assess BMP effectiveness. Results will be provided in the annual Shingle Creek Watershed Monitoring Summary.

EPA finds that this criterion has been adequately addressed.

10. Implementation

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.

Comment:
MPCA discussed numerous implementation activities in the TMDL submittal (Section 10 of the TMCL submittal). The Shingle Creek Watershed Management Commission (SCWMC) Project, a local watershed group, is working with MPCA to implement activities in the subwatersheds. A Second Generation Management Plan has been developed and is being implemented. These implementation activities include:

- Identification of current road salt practices and methodologies.
- Evaluation of changes in product application (i.e., using pre-wetting technology, better truck sensors).
- Improved management of run-off from storage piles.
- Operator training.
- Ongoing research into salt alternatives.
- Education for the government and corporate officials responsible for de-icing activities.

EPA reviews, but does not approve, implementation plans. EPA finds that this criterion has been adequately addressed.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c) (1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/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)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If 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.

Comment:
MPCA held stakeholder meetings on February 4, February 25, April 1, and May 6, 2005, to present the data gathered during TMDL development, and to solicit stakeholder input. MPCA put the Draft Shingle Creek TMDL on public notice from September 25 to October 24, 2006, to provide an overview of the draft TMDL and provide an opportunity for public comments. MPCA mailed a public notice to interested parties and included it in the State Register. The TMDL submittal included the press release, mailing lists, fact sheets, and newsletter. The draft TMDL was posted at: http://www.pca.state.mn.us/publications/reports/tmdl-shinglecreekchloride.pdf on the MPCA's Web site. EPA commented on the draft TMDL, and MPCA adequately addressed the comments in the final TMDL. MPCA received and appropriately addressed two comments on

the TMDL. The comment letters and responses from both commentors were included in the TMDL submittal.

EPA finds that the TMDL submittal from MPCA satisfies all requirements concerning this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should 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's/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 review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comment:
U.S. EPA received the final Shingle Creek watershed TMDL on January 16, 2007, accompanied by a submittal letter dated January 5, 2007. The submittal letter stated that MPCA was submitting the TMDL for final approval. The Shingle Creek watershed is impaired for aquatic life use due to excessive chloride on Minnesota's 303(d) list.

13. Conclusion

After a full and complete review, EPA finds that the TMDL for the Shingle Creek watershed satisfies all of the elements of an approvable TMDL. This approval is for one TMDL addressing one waterbody and one pollutant.

EPA's approval of this TMDL does not extend to those waters that are within Indian Country, as defined in 18 U.S.C. § 1151. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

Table 1

Waterbody Segment	Segment ID #	Pollutant
Shingle Creek.	07010206-506	chlorides

Table 2 (tons of chloride/day)

Flow zone	% exceedence	Loading Capacity	WLA	LA
High	0-10	24.8	23.2	1.6
Moist	10-40	8.8	7.2	1.6
Mid	40-60	4.5	2.9	1.6
Dry	60-90	3.4	1.8	1.6
Low	90-100	1.9	0.3	1.6