



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

NOV 29 2010

REPLY TO THE ATTENTION OF:
WW-16J

Paul Eger, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road N.
St. Paul, MN 55155-4194

Dear Mr. Eger:

The U.S. Environmental Protection Agency has reviewed the final Total Maximum Daily Load (TMDL) for the Nine Mile Creek Watershed (AUID 07020012-518), including supporting documentation and follow up information. Minnesota submitted the TMDL for chlorides to address the Aquatic Life Use. Based on this review, EPA has determined that Minnesota's TMDL for chlorides meets the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, EPA hereby approves Minnesota's one TMDL for this watershed. The statutory and regulatory requirements, and 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 the submitted TMDL, and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. Peter Swenson, Chief of the Watersheds and Wetlands Branch at 312-886-0236.

Sincerely,

A handwritten signature in black ink, appearing to read "Tinka G. Hyde".

Tinka G. Hyde
Director, Water Division

Enclosure

cc: David L. Johnson, MPCA
Chris Zadak, MPCA

wq-iw11-08g

TMDL: Nine Mile Creek Watershed Chloride TMDL, Hennepin County, MN
Date: November 29, 2010

**DECISION DOCUMENT
FOR THE NINE MILE CREEK WATERSHED CHLORIDE TMDL,
HENNEPIN COUNTY, MINNESOTA**

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:

Location Description/Spatial Extent:

The Nine Mile Creek Watershed (NMCW) (AUID 07020012-518) is located in southwestern Hennepin County, Minnesota (MN). The watershed is southwest of downtown Minneapolis, and directly west of the Minneapolis-Saint Paul (MSP) Airport. The NMCW is 44.5 square miles in area and lies within the Minnesota River basin. The NMCW is divided into three reaches, the North Fork of Nine Mile Creek, the South Fork of Nine Mile Creek, and the Main Stem of Nine Mile Creek. The North Fork and South Fork converge north of Normandale Lake in the central portion of the watershed (Figure 1, page 2 of the final TMDL document). The Main Stem of Nine Mile Creek flows in a southeasterly direction from Normandale Lake toward the watershed outlet in Bloomington, MN.

Land Use:

The NMCW is an urbanized watershed with a mix of residential, commercial/office/industrial, parkland, open water (lakes), and wetland space. Figure 1 of the final TMDL document displays the land use delineations within the NMCW. Table 2 of the final TMDL document contains land use calculations, by percentage, of each land use within the NMCW. The NMCW lies in suburban Minneapolis southwest of downtown Minneapolis and directly west from the MSP Airport. Due to its location in suburban Minneapolis, the NMCW has two interstate highways (I-494 & I-35), state and county highways, county roads, and suburban access roads all within its bounds. These roads do not comprise a significant portion of the actual land area, but are a source of chloride inputs to the NMCW.

Problem Identification:

Nine Mile Creek was originally listed on the 2004 Minnesota 303(d) list for chloride. The NMCW TMDL had a target start date of 2005 and is projected to be completed by 2010. Nine Mile Creek is currently on the draft 2010 303(d) list for impaired aquatic life use.

Priority Ranking:

The NMCW was given a priority ranking by Minnesota for TMDL development due to the impairment impacts on public health and aquatic life, the public value of the impaired water resource, the likelihood of completing the TMDL in an expedient manner, the inclusion of a strong base of existing data and the restorability of the water body, the technical capability and the willingness of local partners to assist with the TMDL, and the appropriate sequencing of TMDLs within a watershed or basin (Section 1.0, page 1 of the final TMDL document).

The NMCW is located within the lower portion of the Minnesota River Basin and may contribute high chloride loads under critical conditions to the Minnesota River. Surface waters

within the NMCW are also popular for recreational use, such as fishing, canoeing/kayaking, and swimming. The water quality degradation has led to efforts to improve the water quality conditions of this watershed, and to TMDL development for chloride impairments.

Pollutant of Concern:

The pollutant of concern is chloride.

Source Identification (point and nonpoint sources):

Point Source Identification: Road salt usage by municipal operators and road salt applied by commercial and private applicators (e.g. private citizens and commercial contractors salting parking lots, sidewalks and other pedestrian/automobile usage areas) are the two main sources of chloride in the NMCW. Road salt from these sources is carried into the surface waters draining the NMCW by impervious surfaces (ex. highways, roads, and other paved areas) via municipal storm drains during snowmelt or rainfall runoff events.

The potential point sources to the NMCW are:

- Minnesota Department of Transportation (MNDOT) Metro District Municipal Separate Storm Sewer Systems (MS4) (MS400170)
- Hennepin County MS4 community (MS400138)
- City of Bloomington MS4 community (MS400005)
- City of Eden Prairie MS4 community (MS400015)
- City of Edina MS4 community (MS400016)
- City of Hopkins MS4 community (MS400024)
- City of Minnetonka MS4 community (MS400035)
- City of Richfield MS4 community (MS400045)
- Commercial and private applicators (combined into a Wasteload Allocation (WLA))
- Industrial stormwater (combined into a Categorical WLA)
- Permitted Construction activities (combined into a Categorical WLA, determined to be a minor source of chloride because the NMCW is nearly fully developed and construction work typically occurs in the warmer months when salting is not necessary)
- Stormwater from Normandale Community College (combined into a Categorical WLA)

Nonpoint Source Identification: The potential nonpoint sources to the NMCW are:

- Background chloride or irreducible chloride load
- Runoff from non-regulated salt storage facilities (all of the municipal storage areas are covered in the NMCW)

Future Growth:

Future Growth/Reserve Capacity information can be found in Section 3.3.4 (pages 22-23 of the final TMDL document). Significant development is not expected in the NMCW and therefore existing conditions can be considered as the “ultimate” land use condition for setting the allocations of the NMCW TMDL. The allocations set for point (WLA) and nonpoint sources (Load Allocations, LA) are for all current and future sources. Any expansion of either point or nonpoint sources will need to comply with the respective WLA and LA in the NMCW TMDL.

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the first criterion.

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:

Designated Uses:

The designated use for the NMCW can be found in Section 2.1 (pages 4-5 of the final TMDL document). The Nine Mile Creek waters are designated as Class 2B or 2C, 3B, 3C, 4A, 4B, 5, and 6 (according to Minnesota Rules Ch. 7050.0470). The quality of Class 2B waters, relative to aquatic life and recreation, “*shall be as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable.*”

Standards:

The assessment of aquatic life impairments by chloride requires the use of the numeric water quality standard in Minnesota Rules 7050.0222. The numeric chloride standard is represented as a “chronic standard” (230 mg/L) and a “maximum standard” (860 mg/L). The chronic standard is based on a four-day average while the maximum standard is based on an individual sample. Minnesota Pollution Control Agency (MPCA) determined that violations of the chronic standard occur when two or more exceedances of 230 mg/L are recorded in consecutive three year periods during the most recent ten year period. MPCA determined that violations of the maximum standard occur when there is one exceedance of 860 mg/L in a three year period of recorded data.

Table 1 : MPCA Chloride Water Quality Standard and Basis for Determining Impairment

Standard Description	Standard Limit (mg / L)	Based on	Violation Resulting in Impairment
Chronic Standard	230	4-day average	2 or more exceedances in a 3 year sampling period
Maximum Standard	860	Individual sample	1 exceedance in a 3 year sampling period

MPCA set the target for this TMDL to the chronic standard of 230mg/L based on the reductions needed to meet the standards. A 60% reduction is needed to meet the chronic standard and a 47% reduction is needed to meet the maximum standard. Further discussion of the loadings required to meet the chronic standard are discussed in the following sections of this document.

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the second criterion.

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:

The determination of the loading reductions necessary to meet the chloride standards in the NMCW were completed by utilizing a mass-balance approach for the chloride sources in the

watershed. The watershed loading capacity is based on the loads estimated by a long-term relationship between the chloride concentrations and a mass balance. There is a long term relationship between field measured conductivity and chloride concentrations at all four Watershed Outlet Monitoring Program (WOMP) stations (see page 10 of final TMDL document). Using this information, the existing chloride levels measured in Nine Mile Creek were compared against the Minnesota chloride standards to calculate loading reduction percentages necessary to meet the chloride standards. The reductions in the concentration were equivalent to the load reductions needed. The necessary loading reductions were then applied to the loading capacity for the NMCW TMDL.

In 2003, the Nine Mile Creek Watershed District (NMCWD) began a more intensive water quality monitoring program within the NMCW. The NMCWD aimed to supplement the data already collected in the NMCW by the Metropolitan Council Environmental Services (MCES) at the WOMP stations. The combined data collection efforts of the NMCWD and the MCES resulted in continuous water quality measurements at several WOMP stations within the NMCW. For this TMDL, historical water quality monitoring data were used, as well as conductivity measurements (conductivity was used as a translator to chloride), from the 106th Street WOMP station to better understand the chloride loadings in the watershed. The 106th Street WOMP station was chosen because: it is representative of the entire assessed reach, it integrates all of the upstream sources of chloride, it has the longest period of recorded water quality data, it maintains open water (i.e. does not ice over) through the winter months, and it exhibits the highest 4-day average chloride concentrations.

The NMCWD and MCES monitoring efforts showed that chloride levels typically peaked in the winter months (between January and March). Certain runoff events, during the winter months, exceeded the chloride standards during “critical conditions” (Section 3.1.1 on page 9 of the final TMDL document). The critical conditions corresponded with large snowmelt or precipitation events within the NMCW. Flow conditions in the surface waters of the NMCW during critical conditions can influence chloride concentrations as well. The surface water levels in Nine Mile Creek are also lowest during the winter months, resulting in decreased dilutive capacity throughout the water column.

The MPCA completed regression analyses linking snowfall (days) in the NMCW and chloride concentrations (from conductance measurements). The chloride concentrations were based on the maximum 4-day average and 15-minute values collected at the 106th Street WOMP station. The snowfall measurements were collected at the MSP airport, which is approximately three miles east of the NMCW. Snowfall was measured as any day where 0.01-inches of snow or greater fell at the MSP airport.

The average annual snowfall value from the MSP airport, based on climate records from 1950-2008, was 31 days of snowfall. This resulted in a maximum 4-day average chloride concentration value of 572 mg/L and a maximum 15-minute chloride concentration value of 1625 mg/L. Chloride reductions were calculated based on the chronic (230 mg/L) and maximum (860 mg/L) chloride values. The 4-day average (chronic standard) reduction was set at $(1 - (230/572)) = 60\%$ reduction in chloride. The 15-minute (maximum standard) was set at $(1 - (860/1625)) = 47\%$ reduction in chloride.

The chloride loads for each MS4 community were estimated based on road miles within the MS4 community, the application rate of salt per road mile, and the mass fraction of chloride in road salt. Chloride loads (tons/year) were calculated for each MS4 community, for Hennepin County, and for the MNDOT (Table 2 below). An example calculation explaining the calculation of chloride loads for each MS4 community was shown in Section 3.2 (page 19 of the final TMDL document). The chloride load for the City of Bloomington was shown in Section 3.2 (page 19 of the final TMDL document) and is presented below.

Table 2: Nine Mile Creek Watershed Existing Road Salt Chloride Source Loads (modified)

Source	Estimated Existing Chloride Load		TMDL Designation
	(tons/year)	Percentage	
MNDOT	413	6%	Individual WLA
Hennepin County	761	12%	Individual WLA
Commercial /Private Applicators	2,339	37%	Categorical WLA
Bloomington	692	11%	Categorical WLA
Eden Prairie	128	2%	Categorical WLA
Edina	1,085	17%	Categorical WLA
Hopkins	421	7%	Categorical WLA
Minnetonka	278	4%	Categorical WLA
Richfield	42	1%	Categorical WLA
Background (LA)	198	3%	LA
Total	6,357	100%	

City of Bloomington:

Chloride Load (tons/year) = 5.94 tons per 2-lane road mile per year (Road Salt Application Rate) x 384 miles (road miles in Bloomington) x 0.607 (chloride mass fraction of road salt) / 2 lane miles per road mile (assumption of 2 lane miles per road mile in Bloomington) = 692 tons of chloride per year used by the City of Bloomington.

Chloride loading from commercial applicators was estimated based on literature values. The literature values estimated that 19% of the total salt used in the Twin City Metropolitan Area (TCMA) was contributed by commercial applicators and 5% from private applicators. The commercial and private applicator values were combined 19% + 5% = 24%. The TCMA value of 24% was adjusted based on the unique characteristics of the NMCW. The adjusted loading values for commercial applicators was 34.6% and the private applicators was 3.1% (34.6% + 3.1% = 37.7%). These percentages were used in the formulation of the estimated existing WLA for commercial/private applicators (Table 2 above). The percentage attributed to commercial and private applicators in Table 2, (37%) is approximately 1% less than the adjusted loading value (37.7 %) because in the calculations for Table 2, the commercial and private applicator percentage (37%) includes the background load in its calculation. This issue was clarified by the MPCA in an email to the USEPA dated 11/7/2010 (Exhibit #10 in the Administrative Record).

Individual WLA were assigned to the MNDOT and Hennepin County. The remaining point sources were combined as a categorical WLA. The categorical WLA included the MS4 communities identified in Table 2 above.

Average annual MS4 road salt application rates (tons/mile/year) were calculated based on total road miles (miles) within each MS4 community and road salt application rates (tons/year). The proposed salt application rate reductions were shared with municipal and private applicators (i.e. public works employees) and MNDOT supervisors. These groups shared their technical expertise on the application rate adjustments and expressed their concern that reducing road salting activities could impact public safety. The MNDOT calculated that they could reduce their road salt application rate by 30% without compromising public safety. The MNDOT application rate was reduced by 30% and set at 5.05 tons/mile/year. Hennepin County was also adjusted to the MNDOT application rate of 5.05 tons/mile/year. WLAs for each MS4 community were then calculated from the “adjusted” road salt application rates (tons/mile/year).

The WLA for MNDOT and Hennepin County, based on their salt application rate, did not account for any salt usage from commercial or private applicators. A WLA was assigned to a lumped, or “categorical”, allocation for: the remaining MS4 communities in the NMCW, the commercial and private applicators, the Normandale Community College, and construction and industrial stormwater chloride inputs (See Tables 2 & 3 of this Decision Document).

Table 3: Nine Mile Creek Chloride Budget and Wasteload and Load Allocations

Watershed Chloride Sources	Existing Chloride Loads (tons/year)	TMDL Wasteload Allocation	Daily TMDL Wasteload Allocation	Percent Reduction of Existing Chloride Load (Percent)
		(WLA) (tons/year)	(WLA) (tons/day)	
Hennepin County MS4	761	169	0.463	78
Categorical MS4s	4,985	1,885	5.164	62
MNDOT MS4	413	291	0.797	30
Total WLA Sources	6,159	2,345	6.425	62
Natural and Background Sources	Existing Chloride Loads (tons/year)	TMDL Load Allocation	Daily TMDL Load Allocation	Percent Reduction of Existing Chloride Load (Percent)
		(LA) (tons/year)	(LA) (tons/day)	
Natural and Background Sources	198	198	0.542	0
Total LA Sources	198	198	0.542	0
Overall Source Total	6,357	2,543	6.967	60

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the third criterion.

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:

The LA section is found on page 21 of the final TMDL document. The LA for the NMCW TMDL was based on background chloride measurements from the Mississippi River and from literature values in a chloride identified in the final TMDL document. The empirical measurements from the Mississippi River demonstrated that background chloride was approximately 8.0% (18.4 mg/L) of the chronic chloride standard (230 mg/L). MPCA estimated the background chloride in the TCMA at 18.7 mg/L (8.1% of the chronic chloride standard of 230 mg/L).

The MPCA set the LA for the NMCW TMDL at 8.0% of the loading capacity. The LA was calculated after the WLA had been determined for the NMCW TMDL. The LA was determined to be 0.542 tons/day (see Table 3 of this Decision Document). The LA is not expected to be reduced because the LA is considered as an irreducible/background chloride load.

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fourth criterion.

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 WQs 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:

The WLA section is found on pages 20-21 of the final TMDL document. The WLAs were calculated in order to reduce the chloride inputs into the NMCW from the two main chloride sources: road salts applied by municipal operators (i.e. town or city public works departments) and salt applied by commercial and private applicators. The MPCA determined that a 62 percent reduction in chloride load would meet WLA requirements to meet water quality standards in the NMCW (see Table 3 of this Decision Document). The WLA reductions were applied to the Hennepin County MS4 community (78% reduction in chloride load), a Categorical MS4 (62% reduction in chloride load) and the MNDOT MS4 (30% reduction in chloride load). The NMCW TMDL recommends decreasing chloride usage by municipalities and commercial and private applicators.

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fifth criterion.

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:

The Margin of Safety (MOS) section (Section 3.3.3 on pages 21-22 of the final TMDL document) outlines how the MOS was determined by MPCA. The Nine Mile Creek watershed TMDL utilizes an implicit MOS that utilized several conservative assumptions during the TMDL development process.

The MOS was determined based on a conservatively high number (31 events) of deicing events which were used to calculate loading reductions for the LA and WLA. The 31 deicing events were significantly greater than the number of deicing events observed in any of the other years which were monitored. Water quality measurements, used in the development of the loading capacity, also employed conservative qualities. Water quality measurements were taken at the most downstream monitoring station. This station reduces the level of uncertainty because: it is located the furthest downstream and integrates all of the upstream sources of chloride, it has the longest period of recorded water quality data, it maintains open water throughout the winter, and has the highest chloride concentrations relative to the rest of the monitoring stations.

The U.S. EPA finds that the TMDL document submitted by the MPCA contains an appropriate MOS satisfying the requirements of the sixth criterion.

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:

Seasonal variation was considered in this TMDL as described in Section 3.5 “Critical Conditions and Seasonal Variation” (pages 24-25 of the final TMDL document). Water quality monitoring suggested that chloride concentrations in the watershed vary significantly throughout the year. Chloride concentrations typically exceed the water quality standard between January and March (Section 3.1 on pages 8-15 of the final TMDL document). Elevated chloride concentrations during these “critical conditions” exceed the MPCA’s state water quality chronic standard of 230 mg/L. The critical conditions are those instances where large snowmelt or precipitation events liberate chloride through surface runoff processes, and wash the chloride into the surface waters of the Nine Mile Creek watershed.

Seasonal variations of chloride concentrations were accounted for in the TMDL development process by calculations that estimated daily loading capacities of chloride under critical conditions. The daily loading capacity calculations were based on the relationship between total load and peak streamflow concentrations (large snowmelt or precipitation events). Daily loading capacity values were averaged into 4-day average chloride values over the entire year, and then used to calculate maximum stream concentrations relative to the MPCA water quality standards.

The U.S. EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the seventh criterion.

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:

The Nine Mile Creek watershed TMDL outlines reasonable assurance activities in Section 6.0 (page 29 of the final TMDL document). The reasonable assurance practices will be implemented over the next several years. Methods for reducing chloride inputs to the Nine Mile Creek watershed include:

- Best Management Practice (BMPs) installation and chloride reduction educational programs have been effective in reducing pollutant inputs to surface waters in other watersheds. The MPCA is confident that these practices will be useful in decreasing chloride loadings in the Nine Mile Creek watershed.
- A technical advisory committee (composed of commercial, local government, state government technical experts) provided input on the proposed implementation efforts. This committee will provide feedback through the duration of the implementation efforts in the Nine Mile Creek watershed.
- Water quality monitoring will be completed by the NMCWD and MCES to track the progress of BMP efforts. Depending on the progress made toward reducing chloride inputs into the watershed, implementation strategies or BMP placement could be altered to best reduce chloride loads into Nine Mile Creek.
- The review of Storm Water Pollution Prevention Plans (SWPPP) for construction and industrial sites within the basin. Permittees who have SWPPP for their sites must demonstrate that stormwater generated from their site meets the WLAs targets set by the TMDL. If the SWPPP does not meet the WLA requirements of the TMDL, the SWPPP must be modified to meet these requirements.

The U.S. 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:

Section 4.0 (page 26 of the final TMDL document) outlines the planned water quality monitoring efforts by the NMCWD and the MCES in the Nine Mile Creek watershed. Water quality monitoring efforts will continue at the three Watershed Outlet Monitoring Program (WOMP) stations within the watershed. Post TMDL data will be used to assess chloride improvements in the Nine Mile Creek watershed and test the efficiency of BMP phosphorus removal strategies.

Habitat and fish surveys will monitor aquatic health in the stream environment during the installation and tracking of chloride mitigation efforts. These surveys will aid watershed managers in their understanding how BMP chloride removal efforts are impacting the ecological community in the watershed.

Additionally, the MPCA outlines other efforts in the watershed designed to collect specialized data through a series of small projects in the Nine Mile Creek watershed. These projects will generate data toward a better understanding of: water quality and quantity (flow) data under storm and baseflow conditions, surface water chloride concentration and lake bottom chloride concentration measurements, chloride source identification information, and linkages between weather/road conditions to salt usage by each MS4 community.

The U.S. 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:

Implementation strategies are outlined in Section 5.0 (pages 27-28 of the final TMDL document). The Nine Mile Creek Watershed District and various MS4 communities within the Nine Mile Creek watershed were identified as partner groups which would take responsibility in providing guidance/information to local citizens and organizations on BMP installation. BMPs would include: cost-sharing programs to retrofit and upgrade salt application equipment, greater oversight of local SWPPPs to reduce chloride inputs, and improvements in public works maintenance practices.

Other implementation efforts include strategies to: reduce salt applied to roadways in the basin, decrease the use of packaged salts and other chloride based deicers by commercial/private entities, and encourage communication and coordination between municipal public works officials and private citizens with the goal of lowering salt usage. Information exchange, between commercial chloride applicators and MS4 staff, and public education efforts emphasizing chloride reduction strategies would also be included in the implementation plan from MPCA.

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

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:

The public participation section of the TMDL submittal is found in Section 7.0 (page 30 of the final TMDL document). Various efforts were made to engage public interests during the development of the Nine Mile Creek TMDL. The MPCA organized a Nine Mile Creek "advisory group" which was composed of members from: commercial groups, local and state government officials, and technical experts. This advisory group periodically held meetings, throughout the development of the TMDL, within Hennepin County to discuss the status of the project. The advisory group also solicited input from the Nine Mile Creek Watershed District Managers group and the Nine Mile Creek Citizen Advisory Committee.

The U.S. EPA, the Nine Mile Creek advisory group, the Nine Mile Creek Watershed District Managers group, and the Nine Mile Creek Citizen Advisory Committee provided comments to the MPCA throughout the development of the TMDL and during the public comment period. The draft TMDL was posted online by the MPCA at <http://www.pca.state.mn.us/water/tmdl>. The 30-day public comment period was started on July 26, 2010 and ended on August 25, 2010. The MPCA received 2 public comments and adequately addressed these comments. The MPCA submitted all of the public comments and responses in the final TMDL submittal packet received by the U.S. EPA on October 27, 2010.

The U.S. EPA finds that the TMDL document submitted for the Nine Mile Creek watershed by the MPCA satisfies the requirements of 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:

The U.S. EPA received the final Nine Mile Creek Watershed chloride TMDL document, submittal letter and accompanying documentation from the MPCA on October 27, 2010. The transmittal letter explicitly stated that the final Nine Mile Creek Watershed TMDL for chloride was being submitted to U.S. EPA pursuant to Section 303(d) of the Clean Water Act for U.S. EPA review and approval. The letter clearly stated that this was a final TMDL submittal under Section 303(d) of CWA. The letter also contained the name of the watershed as it appears on the Minnesota's 303(d) list, and the causes/pollutants of concern. This TMDL was submitted per the requirements under Section 303(d) of the Clean Water Act and 40 CFR 130.

The U.S. EPA finds that the TMDL document submitted for the Nine Mile Creek Watershed District by the MPCA satisfies the requirements of this twelfth element.

13. Conclusion

After and full and complete review, the U.S. EPA finds that the chloride TMDL for the Nine Mile Creek Watershed satisfies all of the elements of an approvable TMDL. This approval is for one TMDL, addressing one waterbody for aquatic life use impairments, for the Nine Mile Creek Watershed (AUID 07020012-518).

The U.S. EPA's approval of this TMDL extends to the water bodies which are identified as Nine Mile Creek Watershed (AUID 07020012-518), with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. The U.S. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. The U.S. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.