



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

SEP 28 2010

REPLY TO THE ATTENTION OF:

WW-16J

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

Dear Mr. Eger:

The U. S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) for the Carver Creek Lakes, including supporting documentation and follow up information. The Carver Creek Lakes (Goose Lake, Hydes Lake, Miller Lake, and Winkler Lake) are located in east-central Minnesota, in Carver County. The TMDLs address the Aquatic Recreation Use impairments due to phosphorus.

The TMDLs meet 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 four TMDLs for phosphorus for the Carver Creek Lakes. 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 submitting these TMDLs 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: Chris Zadak, MPCA
Dave Johnson, MPCA

wq-iw7-25g

TMDL: Carver Creek Lakes, Minnesota

Date: SEP 28 2010

DECISION DOCUMENT FOR THE CARVER CREEK LAKES, MINNESOTA PHOSPHORUS TMDLS

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.

Comments:

Location Description: The Minnesota Pollution Control Agency (MPCA) developed nutrient TMDLs for Goose, Hydes, Miller, and Winkler Lakes (Carver Creek Lakes) in Carver County, Minnesota. By implementing measures to reduce nutrient loadings, the TMDLs will address impairments of the aquatic recreation beneficial uses in these lakes. Table 1 below identifies the waterbodies addressed by the TMDLs as they appear on the Minnesota 2008 303(d) list. Minnesota’s priority rankings for TMDL waters are reflected by the target dates for start and completion of TMDL studies.

Table 1. 2008 303(d) List Summary

Lake	DNR Lake #	Listing Year	Affected use	Pollutant or Stressor
Goose Lake	10-0089	2002	Aquatic recreation	Excess nutrients
Hydes Lake	10-0088	2002	Aquatic recreation	Excess nutrients
Miller Lake	10-0029	2002	Aquatic recreation	Excess nutrients
Winkler lake	10-0066	2004	Aquatic recreation	Excess nutrients

The lakes are located in the Carver Creek watershed, near the city of Waconia, in Carver County, Minnesota. Table 2 below summarizes the lake characteristics.

Goose Lake: Goose Lake is located northwest of Lake Waconia. Three small wetland/lake complexes discharge into Goose Lake (Figure 2.2 of the TMDL). Goose Lake discharges into a series of wetlands until it reaches Lake Waconia, which ultimately discharges to Carver Creek.

Hydes Lake: Hydes Lake is located southwest of Lake Waconia. Several small wetlands drain into the lake, as well as flow from Lake Patterson to the north (Figure 2.3 of the TMDL). Hydes Lake discharges into a small ditch and then into Rice Lake to the south.

Winkler Lake: Winkler Lake is located south of Lake Waconia. The main inflow into Winkler Lake is from Rice Lake to the northwest, as well as three small drainage ditches (Figure 2.5 of the TMDL). Winkler Lake drains into Carver Creek, which flows southeast to Miller Lake.

Miller Lake: Miller Lake is located south of Lake Waconia. The main flow into Miller Lake is Carver Creek, which in turn drains several lakes in the watershed (Figure 2.4 of the TMDL). Miller Lake drains into Carver Creek, and ultimately into the Mississippi River.

Table 2. Lake Characteristics of Carver Creek Lakes

Parameter	Goose Lake	Hydes Lake	Miller Lake	Winkler Lake
Surface Area (ac)	333	216	141	73
Average Depth (ft)	4.5	8	7	2 (est.)
Maximum Depth (ft)	10	18	14	3 (est.)
Volume (ac-ft)	1,443	1,788	1,038	137
Residence Time (days)	182 - 256	109 - 186	15 - 37	15 - 27
Littoral Area (%)	100	76	100	100
Direct Watershed (excluding lake)(ac)	2,028	839*	14,645	3,118**
Lake Area: Direct Watershed	1:7	1:4	1:104	1:43

*Includes Subwatershed H2

**Includes Subwatersheds “inlets” 1, 2, and 3

Land Use: The Carver Creek watershed is mainly agricultural in nature, with 54% agricultural use, 18% forest/grassland, and 10% developed (Table 2.1 of the TMDL). Individually, the land use for each lake varies from 52% to 74% agricultural use. MPCA also provided information on the projected land use in 2020.

Table 2. 2005 Land use for the Carver Creek Lakes

Land Use	Goose Lake		Hydes Lake		Miller Lake		Winkler Lake	
	Acres	percent	Acres	percent	Acres	percent	Acres	percent
Agricultural	1925	52	562	53	8806	60	2366	74
Developed	193	5	64	6	1774	12	204	6
Forest/Grassland	427	11	79	8	2553	17	289	9
Wetlands	539	15	128	12	1512	10	266	8
Water	644	17	220	21	143	1	73	2
Total	3728	100	1053	100	14,788	100	3198	100

Fishing and boating occurs on the lakes, although swimming is limited due to algal blooms. State fish surveys indicate the fish population is shifting to more rough fish (carp and bullhead). For 3 of the 4 lakes, the lake is littoral (shallow), and there is abundant plant growth. Hydes Lake is considered a deep lake, but still has significant plant growth. Some locations have excessive plant growth, and much of the plants are invasives (Section 2.7 of the TMDL).

Pollutant of concern: The pollutant of concern for these TMDLs is phosphorus. Levels of phosphorus are above water quality targets, limiting all types of aquatic recreation, including fishing and swimming. Excess phosphorus stimulates excessive plant growth (algae and nuisance plants/weeds). This enhanced plant growth reduces dissolved oxygen in the water when dead plant material decomposes and can cause other organisms to die. For informational purposes, the TMDL also includes water quality data and information for the nutrient indicators chlorophyll-a and Secchi depth. Chlorophyll-a is a primary pigment in aquatic algae. Chlorophyll-a levels correlate well with algal production. Secchi depth is an indicator for water clarity and quality and is measured by lowering a probe into the water until it can no longer be seen from the surface.

The lakes have been sampled for total phosphorus, chlorophyll-a and Secchi depth since 1999. Carver County Land and Water Services conducted a more intensive sampling effort in 2003-2005 for the lakes. All sampling efforts have been from April 1-September 30. Results of the various sampling efforts show that nutrient levels have been consistently high, in some cases as high as 500 µg/l total phosphorus (Section 3 of the TMDL). For the TMDL, monitoring data from 1999-2005 and modeling were used to estimate current phosphorus loadings to the lakes. Detailed information regarding water quality monitoring and assessment can be found in Appendix A of the TMDL.

Pollutant sources: Sources identified by MPCA in the TMDL as contributing to the nutrient impairments include agricultural stormwater run-off from the local lake watershed, atmospheric deposition, failing septic systems, and internal phosphorus release (Section 4.3 of the TMDL). MPCA determined that much of the phosphorus load in the lakes is a result of stormwater runoff from the watershed.

Internal loading of phosphorus is also a significant source of phosphorus to the lake (Section 4.5 of the TMDL). Phosphorus-rich sediments often can settle out in the lake, and when dissolved oxygen levels are reduced (often during the summer months) the phosphorus dissolves out of the sediment and into the water column and is available for use by algae and plants.

The only individual point source any of the watersheds is the National Pollutant Discharge Elimination System (NPDES) permit issued to Bongard's Creamery (MN0002135). The facility discharges wastewater via a pond system and noncontact cooling water. Both discharge into Winkler Lake (Section 4.2 of the TMDL). Two NPDES Phase II permits have been issued, one to the City of Waconia (MS400232) and one to Laketown Township (MS400142). Discharge is to Carver Creek upstream of Miller Lake.

Future growth trends: As stated in Section 6.1.4 of the TMDL, future growth will have only a slight effect on this TMDL. The watershed for Miller Lake is the only watershed that may have development in the future, and MPCA has based the allocations on the 2020 land use for all the lakes. The TMDL may be revised in the future to account for this new growth.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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.

Comments:

Section 1.0 of the TMDL Study describes designated uses and numeric criteria applicable to this watershed.

Use Designation: All four of the lakes are classified as Class 2B waters (MN. R. 7050.0430). The designated uses addressed by this TMDL are aquatic recreation for 2B waters. Class 2 waters include waters which “do or may support fish, other aquatic life, bathing, boating, or other recreational purposes...” (MN R. 7050.0150(3)).

Numeric Standards: Minnesota has numeric criteria for nutrients that limit the quantity of nutrients entering waters (Table 3 below). MN R. 7050.0222(4) defines the numeric criteria, based upon ecoregions. Goose, Miller, and Winkler Lakes are classified by MPCA as shallow lakes in the North Central Hardwood Forest ecoregion (Section 1.3 of the TMDL). Hydes Lake is classified as a deep lake. Lakes are to meet the phosphorus target and either the chlorophyll-a or Secchi disk target. The applicable criteria are:

Table 3. Applicable numeric criteria for Carver Creek Lakes

Parameter	Criteria (shallow) Goose, Miller, Winkler Lakes	Criteria (deep) Hydes Lake
Phosphorus concentration (µg/L)	60	40
Chlorophyll-a concentration (µg/L)	20	14
Secchi Disk transparency (meters)	>1.0	>1.4

Targets:

To achieve the designated use and the applicable eutrophication criteria, MPCA selected the total phosphorus number as the primary target of the TMDL (Section 3.0 of the TMDL). For each of the lakes, the Secchi depth will be the secondary target.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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.

Comments:

Loading Capacity: The loading capacity developed to meet the phosphorus criteria of either 40 µg/l or 60 µg/l for the lakes is presented in Table 4 below. The loading capacity is the combination of the wasteload allocation, load allocation, and margin of safety. Thus, the loading capacity is equal to the TMDL assigned for the waterbody. For this study, MPCA used an average precipitation year to determine the loading capacity.

Table 4. TMDL summary for the Carver Creek Lakes (total phosphorus in kg/yr)

Lake	TMDL	WLA – Laketown Township	WLA - Waconia	WLA – Bongards Creamery	WLA Construction /Industrial	LA Atmospheric	LA internal	LA non- MS4	LA upstream lakes
Goose	0.74				0.0007	0.07	0.30	0.28	0.08
Hydes	0.54				0.0005	0.05	0.21	0.08	0.20
Winkler	1.76			0.41	0.0018	0.02	0.45	0.12	0.77
Miller	4.76*	0.002	0.13		0.0048	0.03	1.45	1.10	2.04

* - This is the correct value; Table 6.6 of the TMDL contains a mathematical error.

Modeling summary: The loading capacity determinations used for the Carver Creek Lakes are based on two models, the Reckhow-Simpson spreadsheet and BATHTUB. Watershed hydraulics (flow) and runoff volume modeling was completed using the Reckhow-Simpson spreadsheet model. Each lake had the watershed further segmented into subwatersheds, to better account for loading and land use. The Reckhow-Simpson model was used to estimate loadings from the subwatersheds where direct measurements of flows and loads were not available (Section 5.2 of the TMDL). The runoff model for each lake was calibrated using existing monitoring data from 1998-2005. The model estimates loads based upon detailed land use information and phosphorus export rates from those uses (Section 5.3 of the TMDL). Predicted vs. monitored data shows generally good correlation (Table 5.3 of the TMDL).

After the loading rates were determined, the BATHHTUB model was applied. The BATHHTUB model applies a series of empirical equations derived from assessments of lake data and performs steady state water and nutrient calculations based on lake morphometry and tributary inputs. The BATHHTUB model requires fairly simple inputs to predict phosphorus loading. The model accounts for pollutant transport, sedimentation, and nutrient cycling. The model was used to determine both the current load (Section 5.5.2 of the TMDL) and the load needed to meet water quality standards for each lake (Section 6 of the TMDL).

The BATHHTUB model was modified to account for the internal loading of phosphorus in the lakes. This was done iteratively until the modeled and actual values were within 10%. Calibration and validation were also done using both wet and dry year precipitation rates. Loads were based upon average precipitation years, which vary depending on the lake. Detailed TMDL modeling information is provided in Section 5 and Appendices B and C of the TMDL.

Critical conditions: The critical condition for the Carver Creek Lakes is the summer growing season for an average precipitation years (Section 6.1.2 of the TMDL). Excessive nutrient problems such as algal blooms and fish kills are most prevalent in Minnesota during the summer recreational season (June through September). The numeric targets developed by MPCA focused on summer season as the critical condition. The annual precipitation conditions are based on actual precipitation received during the monitoring period. The average precipitation year was used in the model, when actual annual precipitation was close to the long-term average annual precipitation for the region.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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.

Comments:

Load allocation for the Carver Creek Lakes are in Table 4 above. To determine the LA, MPCA calculated the load for the point sources (Section 5 below) and subtracted that from the total loading capacity as calculated in Section 3 above (Sections 6.2.1 of the TMDL).

Modeling results show that internal loading can contribute significantly to the current phosphorus budget. Upstream loads contribute load to the lakes as well. MPCA determine the load from upstream lakes, based upon the assumption that the upstream lakes were meeting the appropriate water quality standard (Section 5.2 of the TMDL). A BATHHTUB model was developed and run for each upstream lake, and the results then included in the model used for the impaired lakes.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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 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.

Comments:

The Wasteload Allocations (WLA) are discussed in Section 6.1 of the TMDL and are in Table 4 above. Bongard's Creamery discharges wastewater into Winkler Lake, via a pond system. The discharge is limited by permit to April 1-June 15 and September 15-December 15. The creamery also discharges noncontact cooling water on a year-round basis. MPCA noted that new permit limits in 2004 have resulted in significantly lower phosphorus loads from the Creamery (Section 4.2.1 of the TMDL). The only other point sources are two MS4 permits; City of Waconia (MS400232) and Laketown Township (MS400142). These MS4 permits discharge to Carver Creek and eventually Miller Lake. The WLA is based upon the land covered by the MS4 permits, as well as modeling the potential reductions under the stormwater permits. Section 6 of the TMDL discusses the LA-WLA process in more detail.

MPCA also estimated the loads from construction and industrial stormwater (Section 6.2.2.3 of the TMDL). MPCA believes there is likely to be little activity in any one year, and set the allocation to 0.1% of the TMDL for each lake.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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.

Comments:

The TMDL for the Carver Creek Lakes uses an implicit margin of safety (MOS), based on conservative modeling assumptions (Section 6.1.3 of the TMDL). The main assumption is the use of a low sedimentation rate in the Canfield-Bachman model. MPCA believes that sediment and the attached phosphorus were modeled to settle out of the water at a lower rate than is found in most Minnesota lakes. Much of the buried phosphorus will not be available for resuspension and use as a nutrient. The TMDL explains that as the water quality improves, zooplankton consume higher amounts of algae, thereby removing phosphorus from the system. As the lakes become more clear, this activity increases, removing proportionally more algae and thus removing more phosphorus from the system. The model therefore overestimates the phosphorus concentration in the lake, and correspondingly overestimates the reductions needed to achieve the WQS.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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)).

Comments:

The severity of nutrient-related algal growth in the Carver Creek Lakes is greatest in the summer months. The nutrient targets used in this TMDL were established to meet the most critical period (summer), therefore, the TMDLs will be protective of water quality during all other seasons (Section 6.3 of the TMDL).

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of 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.

Comments:

Reasonable Assurance is discussed in detail in Section 9 of the TMDL Study. A summary is provided below:

Watershed Management: The Carver County Board of Commissioners has established the “Carver County Water Resource Management Area”. Designation of this area provides a framework for water resource management by a variety of means. The County Board has zoning and other land use powers to implement activities to achieve the TMDLs goals, and has established a taxing district to develop funding. Several other programs are involved in the “Management Area”, including the Carver County Land and Water Services Division, the Carver County Extension, and the Carver Soil and Water Conservation District.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of this eighth element.

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.

Comments:

Regular bi-weekly monitoring of the Carver Creek Lakes from April-October will continue as identified in the watershed plan (Section 10 of the TMDL). MPCA believes the monitoring will

increase after best-management practices are installed, to track effectiveness. The State has identified additional locations that may also need to be monitored, to determine the water quality impacts.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of this ninth element.

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.

Comments:

Section 9 of the TMDL Study is an implementation framework and a summary of planned activities. The formal TMDL implementation plan will be finalized by MPCA upon approval of the Carver Creek Lakes TMDL. Based on the phosphorus loading reduction estimates provided in Section 6 of the TMDL Study, the final TMDL Implementation Plan will provide detailed plans for nutrient reductions. Potential activities, identified by MPCA, for controlling nutrients in the lakes, are summarized below.

Internal Loading Reduction Strategies

- Rough fish management
- Aquatic Plant Management
- Boat Traffic Management
- Alum Treatments
- Bio-manipulation

External Loading Reduction Strategies

- Increase infiltration
- Use phosphorus-free fertilizer - required by law
- Increased use of buffers

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.

Comments:

The Carver Creek Lakes TMDL project was administered locally through the Carver County Land and Water Services. A technical advisory committee was established for the TMDL in order to involve interested stakeholders. The committee included local cities, the County Board, the Soil and Water Conservation District, and local residents. All meetings were open to the public. The committee held meetings to discuss watershed TMDL efforts, including the Carver Creek Lakes TMDLs and nearby (now approved) TMDLs for Burandt Lake and Reitz Lake. An open house was held on the TMDL on September 1, 2005.

MPCA placed the Draft Carver Creek Lakes TMDL on public notice from July 19, 2010 to August 18, 2010, to provide an opportunity for public comment. The draft TMDL was posted at: <http://www.pca.state.mn.us/water/tmdl/tmdl-draft.html>, the MPCA's TMDL web site. EPA sent MPCA comments on the draft TMDL, and the comments were adequately addressed in the final TMDL. One set of comments were received during the TMDL public notice period. Public comments were addressed appropriately by MPCA.

EPA finds that the TMDL document submitted by MPCA satisfies all 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.

Comments:

On September 23, 2010, EPA received the Carver Creek Lakes TMDL, and a submittal letter dated September 16, 2010, signed by Paul Eger, Commissioner, addressed to Peter Swenson, EPA, Region 5, Water Division. In the submittal letter, MPCA stated "I am pleased to submit the Carver Creek Lakes Total Maximum Daily Load (TMDL) study for excess nutrients to the U.S. Environmental Protection Agency for final approval". The submittal letter included the names and locations of the waterbodies and the pollutants of concern.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements of this twelfth element.

13. Conclusion

After a full and complete review, EPA finds that the phosphorus TMDLs for Goose Lake, Hydes Lake, Miller Lake, and Winkler Lake satisfies all of the elements of approvable TMDLs. This decision document addresses 4 TMDLs for 4 waterbody segments as identified on Minnesota's 2008 303(d) list (Table 1 above).

EPA's approval of this TMDL does not extend to those waters that are within Indian Country, as defined in 18 U.S.C. Section 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.

