



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

FEB 22 2007

REPLY TO THE ATTENTION OF:

WW-16J

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

Dear Mr. Moore:

The United States Environmental Protection Agency (U.S. EPA) conducted a complete review of the final Total Maximum Daily Load (TMDL) submittal, including supporting documentation and information, for fecal coliform bacteria in the North Branch Sunrise River, which is located in Chisago County. Based on this review, U.S. EPA has determined that Minnesota's TMDL meets the requirements of Section 303(d) of the Clean Water Act (CWA), 33 U.S.C. § 1313(d), and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, by this letter, U.S. EPA approves Minnesota's TMDL for fecal coliform that addresses the aquatic recreation impairment in the North Branch of the Sunrise River. 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 appreciate your hard work in this area and the submittal of the TMDL as required. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Jo Lynn Traub".

Jo Lynn Traub
Director, Water Division

Enclosure

cc: Faye Sleeper, MPCA

wq-iw6-01g

TMDL: North Branch of the Sunrise River, Minnesota

Date: FEB 22 2007

**DECISION DOCUMENT
NORTH BRANCH OF THE SUNRISE RIVER
FECAL COLIFORM 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.

Comments:

Location Description: The Minnesota Pollution Control Agency (MPCA) developed a fecal coliform TMDL for the North Branch of the Sunrise River (NB Sunrise) in Chisago County, Minnesota. By implementing measures to reduce the fecal coliform loading, the TMDL will address primary contact recreation and swimming impairments in the watershed. Table 1, below, identifies the waterbody segment covered by the TMDL submittal as it appears on the Minnesota 2006 303(d) list. Minnesota's priority rankings for TMDL waters are reflected by the target dates for start and completion of TMDL studies. For the NB Sunrise River the target start and completion dates are 2002 and 2005, respectively.

Table 1. 2006 303(d) List Summary

Reach	Description	Listing year	River Assessment Unit ID	Affected use	Pollutant or stressor	Target completion
Sunrise River, North Branch	Headwaters to Sunrise R	1994	07030005-501	Aquatic recreation	Fecal coliform	2005

The NB Sunrise River, in east-central Minnesota, is a tributary of the Sunrise River and part of the St. Croix River Basin watershed. The NB Sunrise River flows in an easterly direction from its headwaters in southeastern Isanti County to the Sunrise River in the east-central part of Chisago County. From the confluence of the NB Sunrise River, the Sunrise River flows approximately two miles to the north where it meets the St. Croix River. The NB Sunrise River has a drainage basin of approximately 70.5 square miles.

Topography and Land Use: The topography in Chisago County is gently sloping and nearly level, with relief ranging from 20 to 40 feet. The county is approximately 840 to 900 feet above sea level (TMDL report, page 9). The soil in the NB Sunrise River watershed is composed of loamy and sandy soils.

Land use in the basin is mainly agricultural, dominated by cash cropping (corn, soybean, oats and rye). Although agriculture is the dominant land use, MPCA reports that less and less farming is done every year (TMDL report, page 12). Other agricultural activities in the watershed include dairy, beef, and poultry operations. Land use is summarized in Table 2 (Table 1.2 of the TMDL report) below.

Table 2. Land use in the watershed

Type	Percentage
Agriculture	58.1
Forest	8.3
Open Water	5.3
Forested Wetland	17.7
Non-Forested Wetland	8.0
Barren	0.1

(USGS, 2001 by Lenz et al.)

The river runs through one city, the City of North Branch, a fast growing community of 8,000 residents that has seen an 88% increase in population from 1990 to 2000 (TMDL report, page 13). The city's growth is a result of the growth of the Twin Cities. The City of North Branch is now considered a reasonable place to live for those commuting to the Twin Cities.

Pollutant of concern: The pollutant of concern is fecal coliform bacteria. Levels of fecal coliform are above water quality standards, making the river unsuitable for all types of aquatic recreation, including swimming. Fecal coliform is a group of bacteria that lives in the intestines of warm blooded animals. Ingestion of water contaminated with fecal coliform bacteria can cause gastric or diarrheal diseases, including typhoid and cholera (TMDL report, page 5).

Pollutant sources: Sources identified in the TMDL report as contributing to the impairment include livestock, humans, wildlife, and pets. A brief summary of each source category is provided below. A more detailed discussion of sources can be found in Section 4.0 and Appendix F of the TMDL report.

Livestock: MPCA identified beef, dairy cows, and horses as the main types of livestock in the watershed. Source estimates for livestock were based on an inventory of the number of feedlots, their location in the watershed, basic information about manure storage, and a windshield survey conducted by Chisago County Soil and Water Conservation staff (per Feedlot Inventory Guidebook, Minnesota Board of Water and Soil Resources, June 1991). MPCA estimated the amount of fecal coliform derived from livestock sources by taking into account the manure management practices at livestock operations in the watershed (TMDL report, page 27). Estimates were based on runoff control ratings for livestock operations, the number of animals, and estimated fecal coliform production rates for each animal type.

Humans: Fecal coliform derived from human sources can reach the NB Sunrise River through multiple pathways, including the North Branch Wastewater Treatment Plan (WWTP), septic systems, and septage land application sites. Loads from the WWTP were calculated from NPDES discharge monitoring reports. MPCA estimated fecal coliform loads from properties with adequate septic systems to be zero. MPCA provided an estimate for fecal loads from septic systems determined by Chisago and Isanti counties as imminent threats to public health in the

watershed. The load from septage land application sites was estimated by MPCA by calculating an average annual volume of septage applied to land by the average concentration of fecal coliform in septage (TMDL report, Appendix F, page 12).

Wildlife: The load contribution from wildlife was estimated by MPCA based on watershed area, wildlife density (deer, geese, waterfowl, and small mammals), and estimated fecal production rates.

Pets: Fecal coliform load estimates for pets were based on the number of pets in the watershed, and further divided by the number of pets in cities without waste collection programs, with waste collection programs, and pets outside of the city. MPCA assumed that 10% of the waste from pets within the city is not collected and that pet waste that enters sewers is not treated (TMDL report, page 28).

Table 4.3 in the TMDL report provides a summary of the available fecal coliform loads (org/day) per source category.

The source loads described above represents the total fecal load produced in the watershed, not necessarily the amount of fecal coliform delivered to the NB Sunrise River. In order to estimate delivery of fecal loads to the NB Sunrise River, MPCA considered factors including the delivery potential, or the proportion of the available load that will wash off the land and reach the river. The delivery potential was also broken down according to season and runoff conditions. The estimated daily load to the river was calculated by multiplying the delivery potentials by the available daily fecal coliform loads, as identified in Table 4.3 of the TMDL report. The total fecal coliform load delivered to the NB Sunrise is summarized in Table 4.4 of the TMDL report.

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 2.0 of the TMDL report describes designated uses and numeric criteria applicable to this watershed.

Use Designation: MPCA has numerous designated uses that apply to the NB Sunrise River watershed. The impaired reach of the NB Sunrise River is classified as Class 2B, 3B, 4A, 4B, 5, and 6 waters (MN. R. 7050.0430). The designated use addressed by this TMDL report is for aquatic recreation for 2B waters.

Numeric Standards: MN R. 7050.0222 establishes the fecal coliform water quality standard (WQS) for 2B waters as follows: "Not to exceed 200 organisms per 100 organisms milliliters as a geometric mean of not less than five samples in any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 2000 organisms per 100 milliliters. The standard applies only between April 1 and October 31."

Targets: The target for this TMDL is the geometric mean portion of the standard as stated in the previous paragraph, as applicable from April 1st through October 31st. MPCA believes that the geometric mean is the more relevant value in determining water quality rather than the maximum exceedance standard of 2000 org./100ml because the geometric mean is a more reliable measure less subject to random variation (TMDL report, page 16). MPCA stated that while the TMDL will focus on the geometric mean portion of the WQS, compliance is required with both parts of the WQS (TMDL report, page 16).

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:

The loading capacity determination used for the NB Sunrise River is based on the process developed for the “Revised Regional Total Maximum Daily Load Evaluation of Fecal Coliform Bacteria Impairments in the Lower Mississippi River Basin in Minnesota” (MPCA 2006). This process is known as the “Duration Curve” method. Using this method, daily loads are developed based upon the flow in the waterbody. For the NB Sunrise River TMDL, loading capacities were determined for 5 flow regimes; High, Moist, Mid, Dry, and Low. For example, the High flow regime means the highest 10% of all flows at a gage. Table 3, below, (Table 5.1 of the TMDL report) lists the loading capacities for each flow regime.

Table 3 – TMDLs, Allocations and Margins of Safety

	FLOW ZONE				
	High	Moist	Mid	Dry	Low
	<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY	1206	618	397	284	204
Wasteload Allocation					
North Branch Wastewater Treatment Plant	6	6	6	6	6
North Branch MS4 NPDES Requirements	286	149	107	71	50
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	608	317	228	151	106
Margin of Safety	305	147	55	55	42
	<i>Percent of total daily loading capacity</i>				
TOTAL DAILY LOADING CAPACITY	100%	100%	100%	100%	100%
Wasteload Allocation					
North Branch Wastewater Treatment Plant	0.5%	1%	2%	2%	3%
North Branch MS4 NPDES Requirements	24%	24%	27%	25%	24%
"Straight Pipe" Septic Systems	0%	0%	0%	0%	0%
Load Allocation	50%	51%	58%	53%	52%
Margin of Safety	25%	24%	14%	19%	21%

Method for cause and effect relationship: The load duration curve (LDC) approach was used for developing this TMDL report, with an explanation found in the Section 5.0 of the report. A very simplified explanation is provided below.

1. Flow data - First, continuous daily flow data are required, and were provided by the flow gage SUN-5, which is located near Sunrise Township, Minnesota. The SUN-5 site is the only monitoring site on the NB Sunrise River with continuous stream flow records, and includes three monitoring seasons of daily flow data covering a wide range of flow conditions (TMDL report, page 17). The data reflect a range of natural occurrences from extremely high flows to extremely low flows.
2. Load Duration Curve development – The LDC is derived from the flow data and water quality standard described above. The fecal coliform WQS of 200 org/100 ml is multiplied by the flow at the midpoint of each flow zone, a flow conversion factor, and a conversion factor to yield the allowable maximum daily load in units of *billions of organisms per day*. For example, if the “mid-range” (50th percentile) flow is 100 cubic feet/second the loading capacity would be:

100 cubic feet/sec x 200 orgs/100ml x 28,312 ml/cubic ft x 86,400 sec/day ÷ 1 billion = 489 billion orgs per day. (TMDL report, page 31)

MPCA’s fecal coliform 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 5.0 of the TMDL submittal). Using the load duration curve approach allows MPCA to determine which implementation practices are most effective for reducing fecal coliform loads based on flow magnitude. For example, loads are significant during storm events, so 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 fecal coliform. The target for this TMDL is the water quality standard, and therefore, based on the LDC analysis, meeting this loading capacity will result in attainment of water quality standards.

Weaknesses of the TMDL analysis are that Non-Point Source (NPS) load allocations were not assigned to specific sources within the watershed, and the estimated source contribution of fecal coliform was based primarily on an estimated inventory of potential sources (i.e., number of cows, horses, deer, etc), 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 storm events as the critical condition for pollutant loadings. Increased loads to the NB Sunrise during this critical condition are the direct result of increased runoff. MPCA further defines the critical condition as the month of June, during which rainfall events and higher concentrations of fecal coliform are more likely to occur, based on analysis of data. June is also the only month in which violations of the mean monthly standard occurred at all sampling stations. By using the load duration approach, MPCA’s TMDL has accounted for all flow conditions, including the higher flow, critical condition.

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:

MPCA identified load allocations for the NB Sunrise River. Table 3 above gives the LAs, by segment and flow regime. MPCA did not determine LAs and related reductions for land use types or source categories; rather, a gross allocation was determined. As discussed in the wasteload allocation section below, MPCA bases the gross allocation on the percentage of the watershed that does not fall under the MS4 permit (68%). As a result, 68% of the remaining loading capacity (after the margin of safety and WWTP WLAs are subtracted), is assigned to the load allocation. MPCA did identify nonpoint sources, delivered under wet and dry conditions, as livestock, septic systems (non-straight pipe), wildlife, and pets not located within the MS4 boundary.

However, MPCA will further refine non-point sources and impacts during and after implementation plan development (Section 8.0 of the TMDL report). MPCA did not determine a specific natural background load, however, impacts from wildlife were considered as a source.

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:

Wasteload allocations (WLAs) are discussed in the Section 5.2 of the TMDL report.

North Branch Wastewater Treatment Plant: The wasteload allocation for the one wastewater treatment plant (WWTP) discharging to NB Sunrise River was determined by multiplying the average wet-weather design flow (0.812 million gallons per day) by the permitted discharge limit (200 organisms/100 ml), and a conversion factor. The WLA calculated by MPCA for the North Branch WWTP is 6 billion organisms/day.

City of North Branch MS4: MPCA determined there is one entity in the watershed subject to the MS4 stormwater requirements; the City of North Branch. The city's MS4 falls under the category of a "designated MS4," in that it has been designated by the MPCA, under MN Rule Chapter 7090, for permit coverage. The city is required to obtain an NPDES stormwater permit by February 15, 2007 (TMDL report, page 32). The allocation for the MS4 is based upon the area covered by the permit (32% of the watershed) and is also based upon flow. As a result, 32% of the remaining capacity (i.e., after the WWTP WLA and MOS are accounted for) was allocated to that permit. This WLA varies with flow regime and is provided in Table 3 above.

WLA for straight pipe discharges is 0. MPCA did not identify any NPDES-permitted confined animal feeding operations (CAFO's) in the watershed.

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

6. Margin of Safety (MOS)

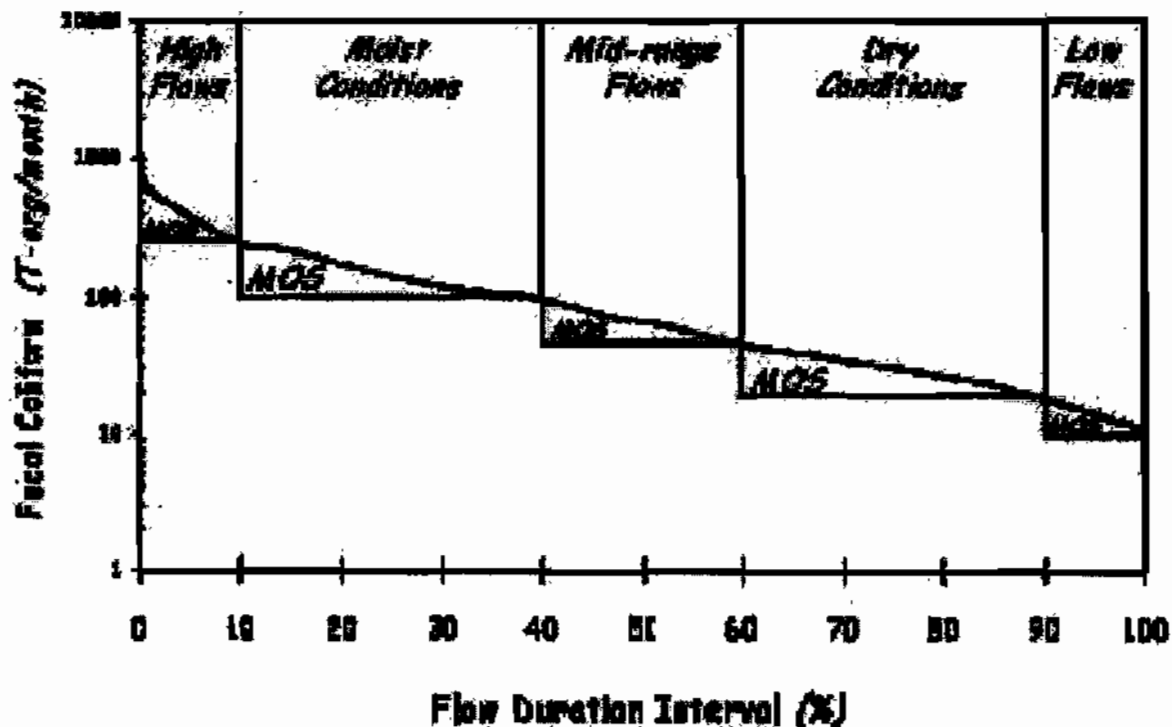
The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be 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 MPCA calculated an explicit margin of safety for each flow regime for each segment. MPCA determined the margin of safety (MOS) based on the difference between the loading capacity as calculated at the mid-point of each of the five flow zones, and the loading capacity

calculated at the minimum flow in each zone. Since the load is based upon the flow, and a higher load could be discharged at a higher flow, this serves to artificially “cap” the load to the lowest flow in each of the flow regimes. Given that the loading capacity is much less at the minimum flow of a zone as compared to the mid-point, a substantial MOS is provided, ensuring that allocations will not exceed the load associated with the minimum flow in each zone. Figure 1 below provides a visual example of the MOS for each flow zone. For the NB Sunrise River, the MOS for each flow zone is provided in Table 3 above.

FIGURE 1. Example of Margin of Safety Allocations for Flow Zones



In addition, MPCA did not account for die-off of pathogens in the loading calculations. As stated in EPA’s *Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination and degree of these environmental variables was sufficient enough to meet the WQS of 200 cfu/100 ml and 2000 cfu/100ml.

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 magnitude of the water quality standard exceedance in the NB Sunrise River was greatest in June. 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.

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:

There are several reasonable assurance actions that will be taken to help implement the TMDL. They are in the Implementation Strategy and Reasonable Assurance Activities sections of the TMDL report and include, briefly:

- Minnesota Clean Water legacy Act – This newly established legislation provides funding for TMDL implementation projects;
- Imminent Threat Septic Systems – Chisago County initiated a 4-year pilot program to identify and address septic systems that pose an imminent threat to public health;
- Soil and Water Conservation Districts (SWCDs) – SWCDs will work with landowners in the watershed to help establish BMPs identified in the TMDL implementation section;
- Agricultural programs- numerous Best Management Practices (BMPs) have been identified that will improve water conditions, and MPCA identified several programs that can provide assistance in developing or funding these BMPs. Programs include State-cost Share, Environmental Quality Incentives Program (EQIP), and EPA's Section 319 grant funding.

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:

MPCA expects monitoring to be performed at the same sites that were monitored for this TMDL study and with samples taken five times per month from April 1 through October 31. At a minimum, monitoring should be completed for two seasons, commencing in 2012, by which time substantial implementation is expected to have taken place (approximately six years after approval of the implementation plan) (TMDL report, page 36).

A detailed monitoring plan will be developed during the post-TMDL implementation planning process. MPCA expects Chisago County Environmental Services to take the lead role with Chisago County SWCD performing the field work and samples analyzed by a state certified laboratory. MPCA and the counties have already initiated funding discussions. The MPCA has money available for ongoing support of this kind of effort but no specific funding has been dedicated to this point.

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:

The submitted TMDL report does not contain a formal implementation plan, since it is not required as a condition for TMDL approval under the current U.S. EPA regulations. However, in Section 8 of the TMDL report, MPCA did identify a "roadmap" for the implementation plan. The roadmap provides a general approach and goals for the implementation phase.

The 6 goals identified by MPCA are summarized below. Details including implementation partners and potential funding sources are included in Section 8 of the TMDL report.

- Goal #1: Reduce the contribution of fecal coliform from unregulated livestock facilities.
Potential BMPs: construction of waste storage facilities, clean water diversions, vegetated filter strips, fence moving to reduce feedlot size, and improved feedlot cleaning.
- Goal #2: Reduce the contribution of fecal coliform from pasture near streams.
Potential BMPs: exclusion (fencing) of livestock from streams, and rotational grazing to help maintain ground cover on the pasture. Less time near the water body will reduce the amount of manure that is deposited into the water body.
- Goal #3: Reduce the contribution of fecal coliform from septic systems determined to be an imminent threat to public health.
Potential BMPs: Bringing septic systems determined to be an imminent threat into compliance with the septic ordinance, and converting from septic systems to city sewer service.
- Goal #4: Reduce the contribution of fecal coliform from surface-applied manure.
Potential BMPs: Stricter manure application stream setbacks, in accordance with "Land Application of Manure: Minimum State Requirements," MPCA document #Wq-f8-11, and The development of certified nutrient management plans.
- Goal #5: Reduce the contribution of fecal coliform from pets.
Potential BMPs: Stormwater management practices in the City of North Branch, in accordance with MPCA BMP standards, and educational activities including service organization (Boy Scouts, etc.) assistance with storm drain stenciling, and outreach and awareness regarding cleaning up pet waste, fertilizer use, and yard waste management.
- Goal #6: Reduce the contribution of fecal coliform from wildlife.

Potential BMPs: Deer population control.

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 NB Sunrise River TMDL project was administered locally through various Chisago County Government Agencies and a steering committee made up of citizens, and representatives of MPCA and MDNR, the City of North Branch, the University of Minnesota Extension, and others. The group met several times throughout the TMDL process, beginning in December 2002. The steering committee also held public informational meetings that were not part of MPCA's official public notice and outreach process for this TMDL.

MPCA put the Draft NB Sunrise River TMDL on public notice from October 31, 2006 to November 29, 2006, to provide an opportunity for public comments. A public meeting was held on October 24, 2006, to present the draft TMDL, and allow the public to ask questions about the project. The meeting was held in North Branch, MN. A public notice was mailed to interested parties, and the TMDL report included the press release, fact sheets, newsletters, and the presentation used at the public meeting. The presentation for the public meeting was included in the final TMDL report. The draft TMDL was posted at: <http://www.pca.state.mn.us/publications/reports/tmdl-sunrise-fecal.pdf>, the MPCA's web site. U.S. EPA sent MPCA comments on the draft TMDL, and the comments were adequately addressed in the final TMDL. Several public comments were received during the TMDL public notice period. Public comments were addressed appropriately by MPCA, and the comment letters and responses were included in the TMDL report.

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:

U.S. EPA received the October 2006 NB Sunrise River fecal TMDL on January 17, 2007, accompanied by a submittal letter dated January 12, 2007. The submittal letter states that this is the final TMDL submittal for the NB Sunrise River.

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 fecal coliform TMDL for the North Branch Sunrise River satisfies all of the elements of an approvable TMDL. This document addresses 1 TMDL for 1 waterbody segment and 1 impairment from the 2006 Minnesota 303(d) list.

Reach	Description	River Assessment Unit ID	Affected use	Pollutant or stressor
Sunrise River, North Branch	Headwaters to Sunrise R	07030005-501	Aquatic recreation	Fecal coliform

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.