



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

JAN 11 2007

REPLY TO THE ATTENTION OF:

WW-16J

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

RECEIVED

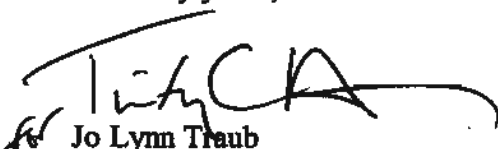
JAN 22 2007

Dear Mr. Moore:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Loads (TMDLs) for fecal coliform in the Chippewa River watershed in Minnesota. The segments are listed in Table 1 of the enclosed decision document. The Minnesota Pollution Control Agency's (MPCA's) TMDLs address the recreational use impairment in 10 segments of the Chippewa River watershed in Minnesota. Based on this review, U.S. EPA has determined that Minnesota's 10 TMDLs addressing 10 impairments meet the requirements of Section 303(d) of the Clean Water Act and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, U.S. EPA hereby approves 10 TMDLs in the Chippewa River watershed in Minnesota. The statutory and regulatory requirements, and U.S. EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document.

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

Sincerely yours,


Jo Lym Traub
Director, Water Division

Enclosure

cc: Faye Sleeper, MPCA

TMDL: Chippewa River, Minnesota

Date: JAN 11 2007

**DECISION DOCUMENT FOR APPROVAL OF THE
CHIPPEWA RIVER, MINNESOTA, 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.

Comment:

The Chippewa River Watershed is located in west central Minnesota and includes all or parts of Chippewa, Kandiyohi, Swift, Stearns, Pope, Stevens, Douglas, Grant, and Otter Tail Counties. The TMDL submittal addresses 10 stream reaches in the watershed, 9 of which were listed on the Minnesota Pollution Control Agency (MPCA) 2006 303d list, and one additional reach which was also determined to be impaired (Page 1 of the TMDL submittal). Table 1 below lists the 10 reaches. The reaches were listed as impaired for recreational use due to high levels of fecal coliform. The watershed is approximately 2080 square miles, and the mainstem of the Chippewa River is approximately 130 miles in length (Page 1 of the TMDL submittal).

MPCA subdivided the Chippewa River watershed into 7 subwatersheds, based upon hydrology and sampling data (Section 2.0 of the TMDL submittal). Numerous tributaries to the Chippewa River are present in the watershed, including the Little Chippewa River, East Branch of the Chippewa River, Shakopee Creek, Dry Weather Creek, Cottonwood Creek, Mud Creek, Spring Creek, and several smaller ditches and drains (Page 6 and Figure 2.01 of the TMDL submittal).

Topography and land use: Section 2.1 of the TMDL submittal details the land use of the watershed. The area is mainly rural, with 73.5% cropland, 11% grassland, and the rest mainly forest and open water. Less than 2% is urban land (Table 2.11 of the TMDL submittal). The population is estimated at 37,500, including the city of Montevideo. There are numerous livestock operations in the watershed, most of which are not large enough to meet the Confined Animal Feeding Operations (CAFO) definition (Page 20 of the TMDL submittal).

Much of the Chippewa River flow is diverted to Lac qui Parle Reservoir on the Minnesota River. This flow is through the Watson Sag channel, and diverts water at both high and low flow. MPCA analyzed the hydrology of the diversion, and determined that there are some impacts on Chippewa River flow from the Minnesota River, but these generally occur at higher flows and have little impact on the overall impairment of the segment (Appendix B of the TMDL submittal)

Pollutant of concern: In this TMDL submittal, MPCA has identified ten waterbody segments of the Chippewa River watershed for violations of the fecal coliform water quality standards. Nine segments were listed as impaired on the 2006 303d list; one additional segment (Chippewa River: Cottonwood Cr to Dry Weather Cr) was determined by MPCA to be impaired during TMDL development. MPCA included this segment in the TMDL, and determined loadings for the waterbody (Section 1 of the TMDL submittal). Table 1 below lists all of the ten segments for this TMDL.

Pollutant point sources: As MPCA has indicated in the TMDL submittal, the Chippewa River watershed is impaired by both point and non-point sources. The point sources include 14 NPDES permitted wastewater facilities (Table 2 below), which discharge into the Chippewa River watershed (Page 18 of the TMDL submittal). The City of Montevideo is the only entity which is required to have a Municipal Separate Storm Sewer System (MS4) (Page 19 of the TMDL submittal). MPCA determined that there are 8 Confined Animal Feeding Operations (CAFO) in the watershed (Page 20 of the TMDL submittal).

Pollutant nonpoint sources: Section 4.0 of the TMDL submittal states that MPCA has identified potential nonpoint sources as:

- Wildlife – deer, geese, ducks, raccoons, turkeys, and other animals.
- Septic systems – those septic systems that are not directly discharging to a waterbody, but effluent can still reach the water (i.e., ponding, etc.).
- Small livestock operations not regulated by CAFO regulations, may be a source of fecal coliform. This would include both the facilities and the related operations such as manure spreading on fields, etc. Numerous registered feedlots are located in the watershed (Figure 4.02 of the TMDL submittal).
- Unregulated stormwater – small suburban/urban sites, (i.e., subdivisions, small towns) can contribute fecal coliform loads to waterbodies.

Population and growth trends: MPCA noted that the population of the watershed is expected to grow 2% in the next 15 years (Page 47 of the TMDL submittal). MPCA also noted that while there may be changes in the sizes and types of animal facilities, there is not a clear trend in overall livestock numbers. For these reasons, MPCA made no changes to the allocations based upon future growth.

Priority ranking: Minnesota's 2006 303(d) list includes a projected schedule for TMDL completions. This schedule reflects the state's priority ranking of impaired waters. The TMDLs for the Chippewa River waterbodies were scheduled for development in 2006.

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

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

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

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

Comment:

Section 3.0 of the TMDL submittal describes designated uses and numeric criteria applicable to this watershed.

Use Designation: MPCA has numerous designated uses that apply to the waterbodies in the Chippewa River watershed. The designated use addressed by this TMDL submittal is for total body recreational use (MN R. 7050.0200).

Numeric Standards: MN R. 7050.0222 establishes the total body contact recreational use fecal coliform Water Quality Standard (WQS) for these 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 these TMDLs is the geometric mean portion of the standard as stated in the previous paragraph, as applicable from April 1st through October 31st. This results in the greatest reductions in the watershed, and MPCA believes that the geometric mean is the more relevant value in determining water quality (Page 10 of the TMDL submittal). 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 (Page 10 of the TMDL).

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

3. Loading Capacity - Linking Water Quality and Pollutant Sources

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

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

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

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

Comment:

Loading capacity: MPCA determined loading capacities using the Load Duration Curve method (Section 5 of the TMDL submittal). Using this method, daily loads are developed based upon the flow in the waterbody. Loading capacities were determined for each reach, and for 5 flow regimes; High, Moist, Mid, Dry, and Low (Table 3 below). For example, the High flow regime means the highest 10% of all flows at a gage. Table 3 below lists the loading capacities for each of the 10 reaches, based upon flow regime.

MPCA believes the geometric mean portion of the WQS provides the best overall characterization of the status of the watershed. The U.S. EPA agrees with this, as stated in the preamble of "The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule" (69 FR 67218-67243, November 16, 2004) on page 67224 "...the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based." MPCA will be relying on the geometric mean portion of the WQS to track implementation activity and results.

Method for cause and effect relationship:

The load duration curve (LDC) approach was used for developing this TMDL submittal, with an explanation found in the Section 5.0 of the TMDL submittal. A very simplified explanation is provided below.

1. **Flow data** - First, continuous daily flow data are required, and were provided by the USGS gage 05304500, which is located near Milan, Minnesota, as well as 5 gage sites operating under the Clean Water Partnership program run by MPCA. The data reflect a range of natural occurrences from extremely high flows to extremely low flows. Section 5.0 and Appendix A of the TMDL submittal explain how the flows were adjusted to account for drainage area.
2. **Water Quality data** - This dataset is the fecal coliform data from 1999-2005. This data was gathered by MPCA and the Chippewa River Watershed Project, a local watershed group (Section 3.2 of the TMDL submittal).
3. **Load Duration Curves (LDCs)**(Attachment C of the TMDL submittal) - These plots are derived from the flow data and water quality data described above. Existing monitored water pollutant loads, represented by the diamond-shaped points on the plot, are compared to target loads, the water quality standard line. If the existing loads are below (less than) the target line, no reduction needs to occur. Conversely, if the existing loads are above (greater than) the target load, a reduction is necessary to reach the target. These graphs allow MPCA to determine the flow conditions under which the exceedences occur, and where. Most of the LDCs in Appendix C of the TMDL show that the exceedences occur during both wet weather events (i.e., flows in the High and Moist range) and dry weather (flows in the Dry and Low range). By knowing the flow conditions under which exceedences are occurring, MPCA can focus implementation activities on those sources most likely to contribute loads.

The TMDL submittal presents LDCs for the each of the 10 impaired segments of the Chippewa Creek watershed. Section 5.2 of the TMDL submittal includes an analysis of the LDC for each segment, and discusses the specific sources and hydrology relating to the segment. The loading capacities were determined for each segment, and for the 5 flow regimes (Table 3 below).

As mentioned in Section 1 above, adjustments to the flow data were made in the Bottom Chippewa subwatershed, due to the diversion of water into Lac qui Parle reservoir, and the back flow impacts from the Minnesota River (Appendix A and B of the TMDL submittal). Flow data was also normalized for the three ditch segments, as direct flow data did not exist for those sites (Appendix A of the TMDL submittal). U.S. EPA agrees with these adjustments.

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). The LDC plots show under what flow conditions the water quality exceedences occur. Those exceedences at the right side of the graph occur during low flow conditions, suspected to be septic systems malfunctions, point source discharge, and illicit sewer connections; exceedences on the left side of the graphs occur during higher flow events, such as storm runoff. MPCA has reviewed these load duration curves, and believes that fecal coliform sources are attributed to both wet-weather and dry-weather events.

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

The load duration curve is a cost-effective TMDL approach, to address the reductions necessary to meet WQS for fecal coliform bacteria. The approach also aids in sharing the responsibility for fecal coliform reductions among various stakeholders in the TMDL watershed, which encourages collective implementation efforts.

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

Critical conditions: MPCA identified summer storm events as the critical condition for pollutant loadings. This is when manure spreading is most common (Section 7.0 of the TMDL submittal). Under these conditions, the impairments are due to farm field run-off, tile drainage, and near-stream pasturing, all of which are related to run-off. However, exceedences are also occurring during dry conditions, which would indicate the sources would be related to more direct sources, such as septic discharge, wildlife, and domestic animals in the streams.

By using the LDC method, all these "critical conditions" are accounted for in the loading allocations. MPCA will be able to determine which flow regime (dry, moist, wet, etc.) is best targeted for implementation activities.

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

4. Load Allocations (LAs)

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

Comment:

Load Allocation: Load allocations were determined for each of the 10 reaches addressed in this TMDL submittal. Table 3 below 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. However, MPCA will further refine non-point sources and impacts during and after implementation plan development (Section 9.1 of the TMDL submittal). MPCA did not determine a natural background load; however, impacts from wildlife were considered as a source.

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

5. Wasteload Allocations (WLAs)

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

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets 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:

Wasteload Allocation: Wasteload allocations are discussed in the Section 5.0 of the TMDL submittal. The wasteload allocation for all wastewater treatment facilities (WWTFs) was

determined by multiplying the wet-weather design flows by the permitted discharge limit (200 organisms/100 ml).

The TMDL submittal indicates there are 14 permitted WWTFs in the Chippewa River watershed, as listed in Table 2 below. Table 2 also lists the WLAs applicable to each facility. For two of the impaired segments (Chippewa River –Watson Sag to MN R and Shakopee Creek), a specific WLA was developed for the individual facilities, but the allocations (including WLA) under the “Low flow” regime were adjusted to account for the fact that the segment can have zero or near-zero flow. In those specific cases, the allocations are an equation rather than a specific number (flow contribution * 200 orgs/100 ml) (Section 5.1 of the TMDL submittal).

MPCA determined there is one entity subject to the MS4 stormwater requirements; City of Montevideo. The allocation for the MS4 is based upon the area covered by the permit (4.5% of the subwatershed, and 0.22% of the entire watershed)(Section 5.2.1 of the TMDL submittal) and is based upon flow. The WLA for all animal facilities designated as CAFOs under the NPDES program is 0. The WLA for straight pipe discharges is 0.

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

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:

The Margin of Safety Section of the TMDL submittal states that there is an explicit margin of safety calculated for each flow regime for each segment. MPCA determined the loading capacity based upon the minimum flow in each flow regime. For example, for the Moist flow regime (10%-40% of flows), the loading capacity was based upon the 40% flow. 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 the flow regime. See Figure 1 and Table 3 below.

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 submittal from MPCA contains an appropriate MOS satisfying all requirements concerning this sixth element.

7. Seasonal Variation

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

Comment:

The Seasonal Variation Section of the TMDL addresses seasonality by using the LDC method, which analyzes impacts based upon flows, which accounts for seasonal variations in flows and thus in loads. Therefore all the standards will be met regardless of the season or flow events.

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

8. Reasonable Assurances

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

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

EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:

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

- National Pollutant Discharge Elimination System (NPDES) permitted Dischargers- MPCA's NPDES permit program requires disinfection for all NPCES wastewater facilities.
- Feedlot and CAFO management of manure, litter, and process wastewater;

- Individual Sewage Treatment Systems – All counties in the watershed are delegated responsibility for implementing State rules for ISTS systems;
- Watershed projects – MPCA has hired a Watershed Specialist as a liaison between planning and activities in the Richland Creek watershed.
- 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.

EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

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

Comment:

The Monitoring Section of the TMDL submittal states that monitoring by the Chippewa River Watershed Project (CRWP) will continue in the watershed, and additional monitoring sites may be added as BMPs are implemented. Results will be proded in the annual Chippewa River Watershed Monitoring Summary.

EPA finds that this criterion has been adequately addressed.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comment:

MPCA discussed numerous implementation activities in the TMDL submittal (Section 9 of the TMCL submittal). The Chippewa River Watershed Project, a local watershed group, is working with MPCA to implement activities in the subwatersheds. These activities include:

- Shakopee Creek: 319 grant received in 2001 and 2005 to implement BMPs including filter strips, livestock exclusion, sediment basins, nutrient management plans, wetland restoration, and shoreline naturalization

- East Branch: 319 funding in 2002 to implement fencing for livestock, buffer strips, shoreline naturalization, alternative tile intakes, etc.
- Lower Chippewa: 319 grant in 2003 for buffer strips, alternative tile uptakes, livestock exclusion, etc.
- Upper Chippewa: Funding available in 2004 for shoreline restoration, alternative tile uptakes, buffer strips, etc.

In addition, MPCA noted several Federal Farm Bill projects that will affect water quality in the watershed, specifically the Conservation Security Program (Section 9.2 of the TMDL submittal). MPCA also noted that county and State staff will be working with unsewered areas to bring them into compliance.

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

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c) (1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Comment:

MPCA put the Draft Chippewa River TMDL on public notice from October 9, 2006 to November 7, 2006, to provide an overview of the draft TMDL and provide an opportunity for public comments. A public meeting was held on September 14, 2006, to present the draft TMDL, and allow the public to ask questions about the project. The meeting was held in Glenwood, MN. A public notice was mailed to interested parties, and the TMDL submittal included the press release, fact sheets, newsletters, and the presentations used at the public meeting. The presentations for all the public meetings were included in the final TMDL submittal. The draft TMDL was posted at: <http://www.pca.state.mn.us/publications/reports/tmdl-chippewa-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. Two comments were received regarding the TMDL; both were addressed appropriately by MPCA, and the comment letters and responses from both commentors were included in the TMDL submittal.

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

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comment:

U.S. EPA received the final Chippewa River watershed TMDL on December 14, 2006, accompanied by a submittal letter dated December 13, 2006. In the submittal letter, MPCA stated that this TMDL study is submitted for final approval. The Chippewa River watershed is impaired for Recreational Use due to excessive fecal coliform on Minnesota's 303(d) list.

The U.S. EPA is approving a TMDL for the same pollutant (fecal coliform) in the one segment that is not on MPCA's 2006 303(d) list. While developing the Chippewa River TMDL project, MPCA determined that segment Chippewa River – Cottonwood Creek to Dry Weather Creek was impaired by fecal coliform (Section 1 of the TMDL submittal). The segment was identified in the draft TMDL (dated October 9, 2006). The public had the opportunity to comment on this additional impaired segment in the TMDL during the MPCA public comment period. This segment was included in the final TMDL submitted to U.S. EPA. The TMDL report discusses the impairments for all the segments in the watershed, and MPCA determined TMDL allocations and calculations addressing all segments including the additional segment, as MPCA developed the TMDL on a watershed basis.

U.S. EPA believes it was reasonable for MPCA to develop a TMDL for the previously unlisted segment at the same time it was developing TMDLs for the listed segments. Because the public has had the opportunity to comment on the decision to include this additional segment within the TMDL, as well as the calculations used to establish the TMDL, and because the transmittal letter of the final TMDL states that the TMDL report is for the Chippewa River watershed, U.S. EPA believes it is appropriate to approve the additional TMDL at this time.

13. Conclusion

After a full and complete review, EPA finds that the TMDLs for the Chippewa River watershed satisfies all of the elements of approvable TMDLs. This approval is for 10 TMDLs addressing 10 waterbodies, for one pollutant each, addressing a total of 10 impairments.

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.

Table 1

Waterbody	Segment	Segment ID #	Pollutant
Chippewa R.	Watson Sag to MN River	07020005-501	Fecal coliform
Chippewa R.	Headwaters to Little Chippewa R.	07020005-503	Fecal coliform
Chippewa R.	Unnamed Cr. to E. Br Chippewa R.	07020005-505	Fecal coliform
Dry Weather Cr.	Headwaters to Chippewa R.	07020005-509	Fecal coliform
E. Br Chippewa R.	Mud Creek to Chippewa R.	07020005-514	Fecal coliform
Shakopee Cr.	Shakopee Lake to Chippewa R	07020005-559	Fecal coliform
Judicial Ditch 29	Headwaters to CD 29	07020005-566	Fecal coliform
County Ditch 29	Headwaters to unnamed ditch	07020005-567	Fecal coliform
County Ditch 27	unnamed ditch to unnamed ditch	07020005-570	Fecal coliform
Chippewa R.*	Cottonwood Cr. to Dry Weather Cr.	07020005-570	Fecal coliform

* - not on the 2006 303d list; determined to be impaired during TMDL development.

Table 2

WWTF	Permit Number	WLA (billion organisms/day)
Benson	MN0020036	5.9
Clontarf	MNG580108	1.6
Danvers	MN0025593	1.4
Evansville	MNG580074	5.7
Farwell-Kensington	MN0065293	4.3
Hancock	MN0023582	1.1
Hoffman	MNG580134	18.8
Kerkhoven	MN0020583	1.1
Lowry	MNG580123	3.1
Montevideo	MN0020133	22.7
Murdock	MN0052990	2.4
Starbuck	MN0021415	2.1
Sunburg	MN0063894	0.9
Watson	MN0022144	0.2

Table 3

Daily Fecal Coliform Loading Capacities and Allocations – Chippewa River, Watson Sag Diversion to Minnesota River (AUID: 07020005-501)

Drainage area for listed reach (sq mi):	2084.0					
Flow gage used:	5304500					
Land Area MS4 Urban (%):	0.22					
Total WWTF Flow (mgd):	9.217					
		Flow Zone				
		High	Moist	Mid	Dry	*Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		8026	2386	841	249	46
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		71	71	71	71	***
Communities Subject to MS4 NPDES Requirements		12	3	1	0.1	***
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		5297	1146	454	26	***
Margin of Safety		2646	1166	315	152	NA

Daily Fecal Coliform Loading Capacities and Allocations – Dry Weather Creek, Headwaters to Chippewa River (AUID: 07020005-509)

Drainage area for listed reach (sq mi):	106					
Flow gage used:	Dry Weather Creek					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		640	141	49	23	6
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		0	0	0	0	0
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		326	71	36	10	2
Margin of Safety		313	70	13	13	4

Daily Fecal Coliform Loading Capacities and Allocations – Chippewa River, Cottonwood Creek to Dry Weather Creek (AUID: 07020005-508)

Drainage area for listed reach (sq mi):	1901					
Flow gage used:	5304500					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	6.192	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		7321	2177	767	228	42
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		48	48	48	48	***
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		4859	1065	431	41	***
Margin of Safety		2414	1064	287	139	NA

Daily Fecal Coliform Loading Capacities and Allocations – Shakopee Creek, Shakopee LK to Chippewa River (AUID: 07020005-559)

Drainage area for listed reach (sq mi):	320					
Flow gage used:	Shakopee Creek					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0.15	High	Moist	Mid	Dry	*Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		1780	838	397	186	23
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		1	1	1	1	1
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		1383	526	276	89	***
Margin of Safety		396	311	120	116	NA

Daily Fecal Coliform Loading Capacities and Allocations – Unnamed Ditch (Judicial Ditch 29), Headwaters to CD 29 (AUID: 07020005-566)

Drainage area for listed reach (sq mi):	2.7					
Flow gage used:	Skakopee Creek					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		15	7	3	2	0.2
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		0	0	0	0	0
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		12	5	2	0.8	0.01
Margin of Safety		3	3	1	1	0.2

Daily Fecal Coliform Loading Capacities and Allocations – County Ditch 29, Headwaters to Unnamed Ditch (AUID: 07020005-567)

Drainage area for listed reach (sq mi):	6.7					
Flow gage used:	Skakopee Creek					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		37	17	8	4	0.5
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		0	0	0	0	0
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		29	11	6	1	0.02
Margin of Safety		8	6	2	2	0.5

Daily Fecal Coliform Loading Capacities and Allocations – County Ditch 27, Unnamed Ditch to Unnamed Ditch (AUID: 07020005-570)

Drainage area for listed reach (sq mi):	13.4					
Flow gage used:	Skakopee Creek					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		74	35	17	8	1
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		0	0	0	0	0
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		58	22	12	3	0.03
Margin of Safety		17	13	5	5	1

Daily Fecal Coliform Loading Capacities and Allocations – Chippewa River East Branch, Mud Creek to Chippewa River (AUID: 07020005-514)

Drainage area for listed reach (sq mi):	509					
Flow gage used:	East Branch					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	0.442	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		3387	1549	829	484	242
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		3	3	3	3	3
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		2386	1045	674	309	106
Margin of Safety		997	501	152	171	132

Daily Fecal Coliform Loading Capacities and Allocations – Chippewa River, Unnamed Creek to East Branch Chippewa River (AUID: 07020005-505)

Drainage area for listed reach (sq mi):	758					
Flow gage used:	Middle					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	4.5	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		3621	2070	1057	664	262
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		34	34	34	34	34
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		2953	1321	808	335	74
Margin of Safety		634	715	216	295	154

Daily Fecal Coliform Loading Capacities and Allocations – Chippewa River, Headwaters to Little Chippewa River (AUID: 07020005-503)

Drainage area for listed reach (sq mi):	427					
Flow gage used:	Upper					
Land Area MS4 Urban (%):	0	Flow Zone				
Total WWTF Flow (mgd):	3.8	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		1911	1312	561	331	137
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		29	29	29	29	29
Communities Subject to MS4 NPDES Requirements		0	0	0	0	0
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		1687	726	444	162	17
Margin of Safety		194	558	89	140	91

Flow zone	% exceedence	Flow Zone	% exceedence
High	0-10	Dry	60-90
Moist	10-40	Low	90-100
Mid	40-60		

Figure 1

