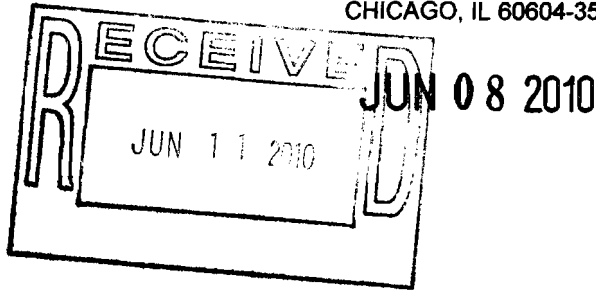




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



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 Mustinka River, including supporting documentation and follow up information. The Mustinka River is located in western Minnesota, in Traverse, Ottertail, Stevens, Grant and Big Stone Counties. The TMDLs address the Aquatic Life Use impairments due to excessive turbidity.

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 two TMDLs for total suspended solids for the Mustinka River. 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,


for Tinka G. Hyde
Director, Water Division

Enclosure

cc: Dave L. Johnson, MPCA

wq-iw5-04g

TMDL: Mustinka River, Minnesota

Date:

DECISION DOCUMENT FOR THE APPROVAL OF THE MUSTINKA RIVER WATERSHED, MINNESOTA, 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 non-point 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 non-point 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/Spatial Extent: The TMDL report addresses the turbidity impairments affecting the aquatic life use of two reaches of the Mustinka River (Table 1 below). The impaired reaches of the Mustinka River are both located entirely within Traverse County, Minnesota; the first being a 4.7 mile reach (AUID 09020102-518) from the Grant/Traverse County line to Five Mile Creek (also known as Judicial Ditch 12) , and the second being a 8.28 mile reach (AUID 09020102-503) running from an unnamed creek to Lake Traverse.

Table 1. Mustinka River TMDL Impaired Reaches

| REACH NAME ON MINNESOTA'S 2008 303(D) LIST | ASSESSMENT UNIT ID | IMPAIRMENT | POLLUTANT (TMDL) | AFFECTED USE | WATERSHED HUC |
|---|--------------------|------------|------------------------|--------------|---------------|
| Mustinka River: Grant/Traverse County Line to Five Mile Creek | 09020102-518 | Turbidity | Total suspended solids | Aquatic life | 09020102 |
| Mustinka River: Unnamed Creek to Lake Traverse | 09020102-503 | Turbidity | Total suspended solids | Aquatic life | 09020102 |

The Mustinka River watershed encompasses approximately 825 square miles within the Red River Basin of the North and is located in the Minnesota counties of Traverse, Ottertail, Stevens, Grant and Big Stone. The Mustinka River flows into Lake Traverse which is considered the headwaters of the Red River of the North (Page 7 of the TMDL).

Topography and Land Use: Most of the Mustinka River located within Traverse County (including the impaired segments) have been channelized. Land use in the watershed is dominated by agricultural crop production (84% crop cultivation and 1.47% pasture/hay), but also includes developed areas (5%), wetlands (5%), forest (0.8%) and grassland (0.5%) (Table 3 of the TMDL). Much of the watershed is underlain by glacial material consisting of poorly drained clays with low permeability. Most of the Mustinka River watershed is located in the Glacial Lake Plain physiographic region, which is characterized by extremely level deposits of glacial lake sediments (Page 10 of the TMDL).

Pollutant of concern: The pollutants of concern for these TMDLs are total suspended solids (TSS). These segments of the Mustinka River are considered impaired due to excessive turbidity. Turbidity in water is caused by suspended sediment, organic material, dissolved salts and stains that scatter light in the water column making the water appear cloudy. Excess turbidity can degrade aesthetic qualities of water bodies, increase the cost of treatment for drinking or food processing uses and can harm aquatic life. Aquatic organisms may have trouble finding food, gill function may be affected and spawning beds may be covered.

Pollutant sources: Nonpoint sources contributing to the turbidity impairment in the Mustinka River include runoff from cropland (soybeans and corn), soil erosion, non-regulated stormwater run-off, small feedlots, and stream-bank erosion. The watershed's hydrology has been significantly altered by drainage and ditching (Page 13 of the TMDL).

Point sources contributing to the turbidity impairments in the Mustinka River include seven municipal wastewater treatment facilities (WWTFs) located in the cities of Wendell, Dumont, Elbow Lake, Herman, Wheaton, Graceville and Hutterite Colony; numerous sand and gravel operations (industrial stormwater general permit or General Sand and Gravel general permit (MNG49)); and six Confined Animal Feeding Operations (CAFOs).

Listing Priority: Minnesota's 2008 303(d) list includes a projected schedule for TMDL completions. This schedule reflects the state's priority ranking of impaired waters. The schedule for the two Mustinka River TMDLs for turbidity has a priority ranking within the top 8% of Minnesota's listed waters.

EPA finds that the TMDL document submitted by 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.

Comments:

Use Designation: The Mustinka River is designated as Class 2B for aquatic life use and recreation (MN. R. 7050.0222), defined as:

The quality of Class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable.

Numeric Standards:

The submitted TMDL report addresses exceedences of the water quality standard for turbidity. The turbidity water quality standard (Minn. R. 7050.0222) for Class 2B waters is 25 NTUs (nephelometric turbidity units).

Targets:

Turbidity cannot be converted into loads because it is a dimensionless value; TSS is being used as the surrogate measure for turbidity in the TMDL calculation. The Minnesota Pollution Control Agency (MPCA) developed a relationship between turbidity and TSS to be able to use the 25 NTU turbidity standard in a load allocation scenario. The MPCA originally determined a TSS target based upon field sampling on the Mustinka River in 2007. The State determined later that the turbidity-TSS relationship was not properly characterized, and reviewed data from the entire ecoregion (Page 12 of the TMDL). MPCA believes the ecoregion data represents a wider flow range, and encompasses a larger dataset (230 vs. 20 paired samples). EPA believes this revised characterization is appropriate given the increase in the dataset and ranges it covers.

The turbidity measurements taken from the same sample as the TSS measurements were defined as “paired” measurements. Using the paired turbidity and TSS measurements for the ecoregion, a multiple regression technique was used to predict TSS based on turbidity. This regression technique resulted in a value of 47 mg/L for TSS to the 25 NTU equivalent. The R^2 value of 0.916 indicates that the strength of the correlation between the two variables is very good (TSS and turbidity) (Figure 4 of the TMDL).

EPA finds that the TMDL document submitted by 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 non-point source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate non-point source loadings, e.g., meteorological conditions and land use distribution.

Comments:

Loading capacity: MPCA determined the total loading capacity, i.e., total maximum daily load, of total suspended solids (TSS) that is necessary to address the turbidity impairments affecting the aquatic life use of two reaches of the Mustinka River. The loading capacities were calculated for each waterbody, and are in Tables 2 and 3 below.

Table 2. TSS loading capacities and allocations (AUID: 09020102-518)

| | Flow Zone | | | | |
|--|-----------|---------|----------|----------|----------|
| | High | Moist | Mid | Dry | Low |
| | Tons/day | | | | |
| TOTAL DAILY LOADING CAPACITY (TMDL) | 11.359 | 1.592 | 0.334 | 0.058 | 0.002 |
| Wasteload Allocation (WLA) | | | | | |
| Permitted Wastewater Treatment Facilities (WWTFs) | 0.325 | 0.325 | ** | ** | ** |
| Construction and Industrial Stormwater | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Load Allocation (LA) | 9.89 | 1.106 | ** | ** | ** |
| Margin of Safety (MOS) | 1.14 | 0.16 | Implicit | Implicit | Implicit |

** - Allocation = (flow contribution from a given source) x (45 mg/L TSS)

Table 3. TSS loading capacities and allocations (AUID: 09020102-503)

| | Flow Zone | | | | |
|--|-----------|-------|-------|----------|----------|
| | High | Moist | Mid | Dry | Low |
| | Tons/day | | | | |
| TOTAL DAILY LOADING CAPACITY (TMDL) | 65.28 | 9.19 | 2.01 | 0.53 | 0.04 |
| Wasteload Allocation (WLA) | | | | | |
| Permitted Wastewater Treatment Facilities (WWTFs) | 0.986 | 0.986 | 0.986 | ** | ** |
| Construction and Industrial Stormwater | 0.026 | 0.003 | <0.01 | <0.01 | <0.01 |
| Load Allocation (LA) | 57.74 | 7.28 | 0.82 | ** | ** |
| Margin of Safety (MOS) | 6.53 | 0.92 | 0.2 | Implicit | Implicit |

** - Allocation = (flow contribution from a given source) x (45 mg/L TSS)

Method for cause and effect relationship: The loading capacities for TSS for the impaired segments of the Mustinka River were determined by MPCA using the load duration curve (LDC) method (Page 16 of the TMDL). Pollutant concentrations were measured at water quality monitoring stations in the watershed (Appendix A of the TMDL). A very simplified explanation is provided below.

1. Flow data - First, continuous flow data are required. However, no long-term flow gages are present on the Mustinka River. To determine flows, MPCA used the Soil and Water Assessment Tool (SWAT) model to determine flows based upon soil runoff curves and precipitation data. These results were compared to short-term gages operated by MPCA, the Bois de Sioux Watershed District, and the US Army Corp of Engineers (Appendix D of the TMDL).

2. Water Quality data - The LDC for AUID 09020102-518 was created by using 2001 – 2006 monitoring data collected at the Norton sampling station. The LDC for the AUID 09020102-503 was created by using 2003 – 2007 monitoring data collected at the Wheaton sampling station.
3. Load Duration Curves - The 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.
4. Analysis - The final step is to link the geographic locations of load reductions needed to the flow conditions under which the exceedences occur. Specific flow regimes contributing to pollutant loads, represented by the graph, are identified to determine under what flow conditions the pollutant exceedences are occurring. The LDCs in the TMDL show that the exceedences occur under varied flow conditions. By knowing the flow conditions under which exceedences are occurring, MPCA can focus implementation activities on those sources most likely to contribute loads.

The 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; exceedences on the left side of the graphs occur during higher flow events, such as storm runoff. The graphs indicate that the Mustinka River is dry for portions of the year, particularly in the upstream segment (Figure 6 of the TMDL).

Using the load duration curve approach allows MPCA to determine which implementation practices are most effective for reducing pollutant 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 runoff. This allows for a more efficient implementation effort. These TMDLs are concentration-based, and tie directly into Minnesota's water quality standard for the pollutants. The target for these TMDLs 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 these pollutants.

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 the pollutants 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. In the event that the pollutant levels do not meet WQSs in response to implementation efforts described in the TMDL submittal, the TMDL implementation strategy may be amended as new information on the watershed is developed, to better account for contributing sources of the impairment and to determine where reductions in the Mustinka River watershed are most appropriate.

Critical Condition: MPCA identified the critical environmental conditions for the turbidity impairments in Mustinka River to correspond to the spring and summer months' period, when observed TSS and turbidity concentrations in the stream are highest. High flows deliver great amounts of TSS into the stream during storm events. Low flows concentrate TSS because the stream's assimilative capacity is being exceeded. Because the LDC approach establishes loads and load reductions based on a representative flow regime, it inherently considers critical conditions which are attributed to flow conditions. Therefore, the Mustinka River turbidity TMDLs accounted for the critical conditions by using LDC to determine the load allocations needed for specific flow conditions.

EPA finds that the TMDL document submitted by 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 non-point 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 non-point sources.

Comments:

MPCA's calculated total load allocations (LAs) of TSS for the Mustinka River reaches are included in Table 2 and Table 3 above. The existing nonpoint sources contributing to the LAs include runoff from cropland (soybeans and corn) and stream-bank erosion. The watershed's hydrology has been significantly altered by drainage and ditching.

EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

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

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual

WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comments:

MPCA’s calculated waste load allocations (WLAs) of TSS for the Mustinka River reaches are included in Table 2 and Table 3 above, and Table 4 below. The existing point sources contributing to the WLA include the following:

- Seven municipal wastewater treatment facilities (WWTFs) located within the Mustinka River watershed. These WWTFs are all pond systems. Their NPDES permits include a discharge limit for TSS (in kg/day). The permits allow for two discharge windows between April 1 through June 30, and September 15 through December 31. In general, these windows coincide with high flow periods. The WWTFs are only allowed to discharge a limited volume of effluent from the pond system per day. The WLAs for the WWTFs were determined by MPCA based on the permitted daily load of TSS.

The Mustinka River is dry during much of the summer. For the WWTFs, the average wet weather design flow is greater than the flow in the stream under several flow conditions. In these cases, MPCA has assigned a WLA based upon the flow:

$$\text{Allocation} = \text{flow from source} \times 45 \text{ mg/l TSS}$$

- Construction stormwater and industrial stormwater were lumped together by MPCA into a categorical WLA based on an approximation of the land area covered by those activities (Tables 2 and 3 above). MPCA construction stormwater permit application records over the last 4.5 years indicate approximately 0.02 percent of the acreage in the watershed is subject to construction on an annual basis. To account for industrial stormwater, for which the MPCA does not have readily accessible acreage data, another 0.02 percent of the land area was estimated for a combined construction and industrial stormwater percentage of 0.04 percent. MPCA determined that there are no communities subject to the municipal separate storm sewer (MS4) permit requirements (Page 14 of the TMDL).
- There are 98 registered feedlots located within the watershed, of which 6 meet the definition of Confined Animal Feeding Operation (CAFO) under the NPDES regulations (Table 5 below; Page 15 of the TMDL). All the CAFOs have been issued NPDES permits under the State of Minnesota General Livestock Production Permit. These CAFO facilities are assigned a zero waste load allocation. This is consistent with the conditions of the permit, which allows no discharge of pollutants from the production area of the CAFO.

Table 4 WLAs for Individual NPDES facilities in the Mustinka River Watershed

| City | Permit Number | Design Flow (MGD) | TSS WLA lbs/day | TSS WLA tons/day |
|------------------|---------------|-------------------|-----------------|------------------|
| Wendell | MNG580153 | 0.0195 | 61.10 | 0.03055 |
| Dumont | MN0064831 | 0.0149 | 45.76 | 0.02288 |
| Elbow Lake | MNG580082 | 0.20792 | 590.04 | 0.29502 |
| Herman | MN0023647 | 0.1015 | 256.08 | 0.12804 |
| Wheaton | MN0047278 | 0.235 | 694.98 | 0.34749 |
| Graceville | MNG580159 | 0.1256 | 279.4 | 0.1397 |
| Hutterite Colony | MNG580168 | 0.0104 | 46.30 | 0.02315 |
| Total | | 0.59232 | 1934.6 | 0.9673 |

Table 5 *CAFOs in the Mustinka River Watershed*

| <u>Name</u> | <u>Permit Number</u> |
|-----------------------------------|----------------------|
| Big Stone County Hutterite Colony | MNG440392 |
| Scott Andrews Farm | MNG440755 |
| Anthony Arens Farm | MNG440495 |
| Ryan and Lyle Pederson Farm | MNG440876 |
| Craig Lichtsinn Farm | MNG440304 |
| Valley Pork LLP | MNG440400 |

EPA finds that the TMDL document submitted by 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.

Comments:

The Mustinka River TMDLs incorporated a margin of safety (MOS) that is both implicit and explicit. An explicit MOS of 10% was incorporated into the TMDLs for the high and moist range flow calculated allocations. MPCA considers that the 10% MOS will provide an adequate accounting of uncertainty because the wastewater treatment facilities in the watershed have consistently been well below their permitted TSS discharge limit, and only discharge during spring and fall windows (i.e., before June 30th and after September 15th). Additionally, an implicit MOS was incorporated into the TMDLs for the low flow, dry, and mid-range flow zones allocations. Conservative assumptions were built into the TMDL allocations, which include the following:

- The reaches are expected to meet the TMDL requirements because the permitted point source dischargers are only allowed to discharge in the spring and fall, as noted above, so during a significant portion of the year the actual loading is zero.
- The WWTFs in the watershed have also consistently demonstrated discharging an effluent that is well below the 47 mg/l TSS target, thereby providing additional capacity.
- Finally, during lower flow conditions the stream itself is primarily being fed by ground water; this ground water typically conveys very little TSS.

EPA finds that the TMDL document submitted by 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)).

Comments:

MPCA noted that turbidity levels are generally at their worst following significant storm events during the spring and summer months (Page 24 of the TMDL). The Mustinka River TMDLs accounted for seasonal variation by utilizing the SWAT model to develop runoff loads and flows in the watershed. The SWAT model utilized 30 years of climate data to capture the seasonal variations in the flows and subsequent loads (Appendix D of the TMDL).

EPA finds that the TMDL document submitted by 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 non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur, EPA’s 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that non-point 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 non-point sources. However, EPA cannot disapprove a TMDL for non-point 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:

Existing and proposed water quality improvement and management activities in the Mustinka River watershed provide reasonable assurance that the turbidity impairments of the Mustinka River will be reduced over time.

There are a number of existing water management plans (e.g., Red River Basin Water Quality Plan, County Comprehensive Local Water Plans and the Bois de Sioux Watershed District

Watershed Management Plan) that address water quality issues in the watershed. There are also a number of state and federal funding programs (e.g., Clean Water Legacy Act, EPA grants, Clean Water Partnership grants, Natural Resource Conservations Service programs, and Conservation Reserve Enhancement Program) that can address a variety of local water quality problems. These plans and programs have and will continue to play a major role in the protection and restoration of surface waters within the watershed.

At the local level, county soil and water conservation districts (SWCDs), local water planners, and the Bois de Sioux Watershed District have identified water quality related natural resource concerns and have developed plans to address surface and ground water issues. The watershed, through its Flood Damage Reduction (FDR) process will continue to play a major role (along with the State of Minnesota) in sponsoring flood control projects throughout the watershed that will result in reduced flows during high flow periods and consequently further reduce turbidity in the rivers and streams. The five SWCDs and the watershed district have identified BMPs and structural controls that they will support and promote which reduce sedimentation and erosion in critical areas of the watershed. Such practices and controls include: crop residue management, grass waterways, shelter belts, filter strips, buffer strips, side inlet control structures, sediment basin, grade control structures, stream bank stabilization practices, and channel restoration activities. The Bois de Sioux Watershed District and local water planners have also consented to participate and support all future TMDL implementation efforts. The support of TMDL studies for all impaired waters and the development of TMDL implementation plans at the local level is a key element of the Bois de Sioux Watershed District Overall Plan and in each of the Local County Water Plans.

EPA finds that the TMDL document submitted by MPCA adequately addresses 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 non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur. Such a TMDL should provide assurances that non-point 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:

Monitoring of water quality changes will occur on an on-going basis by the MPCA, the Red River Water Management Board, River Watch and other local units of government in order to document changes in water quality as the various activities identified in the implementation plan are put into action. Watershed Districts and Soil and Water Conservation Districts will make routine observations with regard to the effectiveness of projects and conservation practices.

There are several monitoring activities occurring in the Mustinka River Watershed and most will continue into the future. Some of these monitoring activities include the Red River Basin's

River Watch program, the Red River Water Management Board's surface water quality monitoring program, United States Geological Survey flow monitoring, and the MPCA's Milestone and Condition monitoring programs. These existing monitoring activities and additional project specific monitoring will be used to track progress towards the achievement of the load allocation goals for the impaired reach on the Mustinka River as implementation of BMPs take place. The project specific monitoring (effectiveness monitoring) will require the development of a systematic monitoring program with standard operating procedures that monitor not only water chemistry, but where possible, flow in locations where implementation activities have occurred. Monitoring will also include regular observations made by local resource managers as to the effectiveness of projects and installed BMPs in reducing erosion and sedimentation.

A detailed monitoring plan is projected to be included as part of the forthcoming implementation plan which will contain additional monitoring site locations, sampling schedules and responsible parties.

EPA finds that this ninth element has been adequately addressed in the TMDL document submitted by MPCA, although EPA is not approving these recommendations for monitoring or any other aspect of Minnesota's monitoring program through this decision.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve non-point source load allocations established for 303(d)-listed waters impaired by non-point sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that non-point source LAs established in TMDLs for waters impaired solely or primarily by non-point 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:

Existing water management plans and programs will be utilized to seek funding and implement best management practices that will reduce non point sources of turbidity. A detailed implementation plan will be developed by the Bois de Sioux Watershed District with the assistance of its Flood Damage Reduction Project Team and the various SWCDs within the watershed within one year of EPA approval of the Mustinka River TMDLs.

These local organizations will utilize existing water management plans to develop the implementation plan that will focus on spatially identifying the sources of the sediment loading to the Mustinka River, and addressing the most critical contributions to sedimentation of the Mustinka River. The Bois de Sioux Watershed District and other local units of government will seek funding through existing state and federal programs for TMDL implementation activities. The SWAT model developed for the watershed will be a useful tool in aiding with the development and implementation of effective land management practices to reduce erosion and sedimentation within the watershed. The application of the principle of adaptive management throughout the process will insure that the effectiveness of these approaches will be periodically

examined to determine that they are effective and that ongoing efforts will be made to identify new sources of sedimentation within the watershed.

Although a formal implementation plan is not required as a condition for TMDL approval under the current EPA regulations, EPA finds that the TMDL document submitted by MPCA adequately addresses this tenth element.

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 U.S. 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:

Public participation for the Mustinka River TMDLs occurred in four phases. The first phase introduced the concept of impaired waters and TMDLs for the Red River of the North Basin. Meetings were held in strategic geographic locations within the basin and representatives of local units of government and the general public were invited to attend and participate. The second phase engaged a specific stakeholder group in the details of the TMDL for the Mustinka River. That stakeholder group was comprised of staff and appointed/elected officials from the various local units of government within the watershed. A number of state agency representatives also participated in that process. Further input regarding the TMDL was gleaned from participants at numerous FDR project team meetings and local water planning meetings that occurred within the watershed over an extended time frame. The third phase included a public meeting held at a location within the watershed and the formal public comment period required by federal and state regulations. The fourth phase occurred when MPCA revised the TMDL after the first public comment period, and public noticed the revised TMDL. Table 6 below provides the location and dates of the meetings, and the stakeholder groups that were represented in these meetings.

Table 6 – Public meetings/Stakeholder Involvement

| PHASE | MEETING LOCATION | MEETING DATE | STAKEHOLDER GROUPS |
|--------------|---------------------------------------|-----------------------|---|
| Phase I | Wheaton | 7/27/2005 | State and local governmental units and the general public |
| Phase II | Breckenridge | 10/25/2006 | Bois de Sioux Watershed Board, Staff, Soil and Water Conservation Districts, County Representatives |
| Phase II | Wheaton | 12/6/2007 | Bois de Sioux Watershed Project Team and local stakeholders |
| Phase II | Wheaton | 3/24/08 | Project Team and local stakeholders |
| Phase III | Wheaton | 4/30/09 | Public Meeting /Project Team |
| Public III | Public Comment Period | 5/18/2009 – 6/17/2009 | state and local governmental units and citizens |
| Public IV | 2 nd Public Comment Period | 3/08/2010 – 4/07/2010 | state and local governmental units and citizens |

The public was made aware of the TMDL public meetings and public notice through local press releases to local media outlets and letters of invitation to interested parties. Copies of the draft TMDL Report for Mustinka River were available to the public upon request and on the MPCA website at <http://www.pca.state.mn.us/water/tmdl.html#drafttmdl>. In addition to the public comment period, four stakeholder meetings were held between August 2005 and April 2008. As part of the final TMDL submittal, the state provided to EPA copies of the press releases of the 2nd public notice, the mailing list of interested parties, and copies of the written public comment letters received during public comment period and the state responses to these comments (Attachment to the Cover Letter of the TMDL). MPCA received one written public comment during Mustinka River TMDL 2nd public comment period, and the comment was adequately addressed by MPCA (Attachment to the Cover Letter of the TMDL).

EPA finds that the TMDL document submitted by 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.

Comments:

On May 27, 2010, EPA received the Mustinka River TMDL, and a submittal letter dated May 13, 2010, signed by Paul Eger, Commissioner, addressed to Tinka Hyde, U.S. EPA, Region 5, Water Division. In the submittal letter, MPCA stated "I am pleased to submit a revised Mustinka River Total Maximum Daily Load (TMDL) study for turbidity to the U.S. Environmental

Protection Agency (EPA) 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 concerning this twelfth element.

13. Conclusion

After a full and complete review, U.S. EPA finds that the TMDLs for Mustinka River (Segment IDs 09020102-518 and 09020102-503) satisfy the elements of approvable TMDLs. This approval addresses two segments for one pollutant for a total of two TMDLs addressing one impairment each (see table below).

Table 6

| Impaired Reach Name | Assessment Unit ID | Pollutant | Impairment (s) Addressed by TMDL |
|---------------------|--------------------|-----------|----------------------------------|
| Mustinka River | 09020102-518 | TSS | turbidity |
| Mustinka River | 09020102-503 | TSS | turbidity |

EPA's approval of the Mustinka River TMDL extends to the waterbodies which are identified in this decision document and the TMDL study with the exception of any portions of the waterbodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the State's TMDL with respect to those portions of the waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.