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

FEB 12 2007

REPLY TO THE ATTENTION OF:

WW-16J

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

Dear Mr. Moore:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Load (TMDL) for sediment in the Lower Ottertail River in Minnesota. The Minnesota Pollution Control Agency's (MPCA's) TMDL addresses the aquatic life use impairment due to turbidity in the Lower Ottertail River watershed in Minnesota. Based on this review, U.S. EPA has determined that Minnesota's TMDL addressing one impairment meets 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 one TMDL for the Lower Ottertail River 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 this TMDL 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 Lynn Traub
Director, Water Division

Enclosure

cc: Faye Sleeper, MPCA

wq-iw5-02g

TMDL: Turbidity (Sediment) TMDL for the Lower Otter Tail River, Minnesota
Approval Date: FEB 12 2007

DECISION DOCUMENT FOR THE APPROVAL OF THE LOWER OTTER TAIL RIVER 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 Otter Tail River Watershed is located in west-central Minnesota and comprises approximately 1,983 square miles of the Red River Basin in west-central Minnesota. The Lower Otter Tail River subwatershed comprises approximately 52,000 acres, and is the smallest subwatershed in the Otter Tail Watershed (making up 4.1% of the area). Land-use is dominated by agricultural cropping (90%), and is also characterized by rapid surface drainage due to drainage ditches. The Minnesota Pollution Control Agency (MPCA) listed a segment of the Lower Otter Tail River subwatershed on the state's 2006 303(d) list of impaired waters due to exceedances of the turbidity water quality standard. The 2006 303(d) list identifies this 8.2 mile impaired reach as "Otter Tail River, Breckenridge Lake to Bois de Sioux River" (assessment unit 09020103-502). It is the last reach downstream before the confluence with the Bois de Sioux River, and will be referred to as the Lower Otter Tail River (LOTR) throughout this Decision Document.

Turbidity values exceeding the WQS can harm aquatic life in various ways. Excess turbidity makes it more difficult for aquatic life to find food, affects gill function, and covers spawning beds (Pages 6 of the TMDL Report). MPCA believes that the turbidity affecting the LOTR is caused by suspended soil particles that scatter light in the water column, making the water appear cloudy (i.e., turbid conditions). The MPCA determined that reductions in suspended soil particles (i.e. sediment) are needed to attain Water Quality Standards (WQS) for turbidity. If reductions in sediment do not address the turbidity impairment, then the TMDL strategy may be amended as new information on the watershed is developed, to better account for contributing sources of the pollutant and to determine where reductions are most appropriate.

According to MPCA, there are no point sources contributing directly to the LOTR, or to the study area (defined as the Orwell Reservoir (upstream boundary), and the confluence of the Otter Tail River with the Bois de Sioux River in Breckenridge (downstream boundary)). Sediment controls will therefore be addressed through Non-Pont Source (NPS) measures such as agriculture conservation activities, control of rapid surface run-off, and control of wind erosion (Pages 4, 8, and 9 of the TMDL Report).

EPA finds the State's approach acceptable and it meets the requirements of this section.

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:
Minn. R. Ch 7050.0200 establishes that all waters of Minnesota are assigned classes based on their suitability for the following beneficial uses:

Class 1	Domestic Consumption
Class 2	Aquatic life and recreation
Class 3	Industrial consumption
Class 4	Agriculture and wildlife
Class 5	Aesthetic enjoyment and navigation
Class 6	Other uses
Class 7	Limited resource value

The entire length of the Otter Tail River (from Height of Land Lake to the mouth) has been classified as a 1C, 2Bd, 3B, 4A, 4B, 5, and 6 water. This designation also applies to the impaired reach of the TMDL, from Breckenridge Lake to Bois de Sioux River (See Conversation Record dated 1/30/07). For this TMDL, Class 2Bd standards are addressed (and can be found at Minn. R. Ch 7050.0222 Subp. 3) because it is protective of aquatic life, and states that:

"The quality of Class 2Bd 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."

Furthermore,

"The applicable standard for turbidity is 25 NTUs."

As discussed in Section 1 above, MPCA believes that the turbidity affecting the LOTR is caused by suspended soil particles that scatter light in the water column, making the water appear cloudy (i.e., turbid conditions). Since a "load" of turbidity is impossible to calculate, MPCA determined that suspended soil particles (i.e. sediment) were an appropriate target for meeting the turbidity Water Quality Standard (WQS). MPCA reviewed turbidity and SSC data from the LOTR as well as other rivers in the basin. A regression analysis was developed, and showed a fairly good correlation between turbidity and SSC (Page 14 of the TMDL Report). MPCA believes that when sediment levels are reduced to the level established in this TMDL, then the turbidity standard of 25 NTUs will be attained and aquatic life will be protected.

EPA finds the State's approach acceptable and it meets the requirements of this section.

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:
Violations
Samples were collected at four sites along the Otter Tail River between Orwell Dam and the Bois de Sioux River. Site 1 is located just below Orwell Dam, and is U.S. Geological Survey gaging station (05046000). Site 2 is located at the Wilkin County 17 crossing near Everdell (05046270). Site 3 is located at the Wilkin County 10 crossing just below Breckenridge Lake (05046450), and Site 4 is located at 11th St. Bridge in Breckenridge (05046502).

Collection of samples began in September of 2001 and concluded June of 2003. Samples were collected on a monthly basis from October - May, and twice a month from June - September. At each site, in-stream physical parameters were measured, and suspended sediment samples were collected. Discharge was measured during sample collection for all sites except site 1. Site 1 is a continuous recording gaging station, and therefore, daily discharge is available. In September of 2001 a continuous recording gaging station was established at Site 4, and operated for the sampling period. Suspended sediment samples were analyzed by the U.S. Geological Sediment Laboratory.

Monitoring data confirmed that the LOTR does not meet the state standard of 25 NTU for turbidity. Approximately two-thirds of the samples collected at the 11th Street Bridge in Breckenridge (Site 4) exceeded the WQS (Pages 10-11 of the TMDL Report).

Modeling

The statistical model S-LOADEST was used for the development of the sediment target. Annual, monthly, and daily sediment loads for the two-year period (2001-2003) were estimated at all sites using the S-LOADEST model. To estimate loads on a daily basis, a continuous record of daily discharge is required. Site 1 is a historic continuous recording gaging station, and site 4 was a continuous recording gaging station for the two-year study period. Sites 2 and 3 did not have continuous recorders for the two-year study period. A drainage-area ratio was applied to flow differences between site 1 and site 4 to estimate daily flows for sites 2 and 3. Using paired instantaneous discharge measurements and suspended sediment concentration (SSC) samples, S-LOADEST created a model to predict SSC based on discharge for each site. Estimated loads from the S-LOADEST model fit reasonably well with loads computed from instantaneous samples (measured loads) for all sites (Page 16 of the TMDL Report).

Duration curve analyses were used in addition to the S-LOADEST model. Duration curves describe the percentage of time during which specified flows are equaled or exceeded. Flow duration analysis looks at the cumulative frequency of historic flow data over a specified period. Duration analysis results in a curve, which relates flow values to the percent of time those values have been met or exceeded. Thus, the full range of stream flows is considered. Using the flow duration curve along with SSC data allowed MPCA to determine under which flow condition the SSC target is exceeded. MPCA determined that suspend sediment concentrations exceeded their target during moist conditions and high flow conditions, but did not exceed the target concentration during dry conditions, low flow, or mid-range flow conditions (Figure 16 of the TMDL Report).

Loading Capacity

The loading capacity is calculated first by determining the correlation of suspended sediment concentrations to turbidity values in the LOTR. As previously discussed, data from four sites were used in the S-LOADEST model to determine existing loads. MPCA determined that using data from Site 4 to develop the load reduction target is most appropriate since this site is not altered by any physical features that may affect the turbidity/sediment relationship and also because this site is located within the impaired reach (Page15 of TMDL Report). Based on the

data at Site 4 and using regression equations, MPCA determined that suspended sediment concentrations measure 58.9 mg/L when turbidity is 25 NTU (Page 24 of the TMDL Report).

MPCA explains that the regression equation used to determine the suspended sediment concentration of 58.9 mg/L is appropriate because turbidity was measured continuously over the sampling period. The suspended sediment concentration was sampled intermittently, every two weeks in the summer and monthly for the remainder of the sampling season. Because of the higher rigor of the turbidity data set, the regression equation needed to be set up so that SSC is the dependent variable. In other words, when we know the value of turbidity, the equation can be used to predict the value of SSC (See e-mail from MPCA dated January 24, 2007).

The total maximum daily load that can be carried in the LOTR at any given time is directly calculated as the target concentration (58.9 mg/l) x flow. Therefore, the total maximum daily load (i.e. loading capacity) for any given day is determined by the flow for that day. Figure 17 of the TMDL Report shows the applicable loading capacities as a function of flow. The loading capacities for various flow conditions are also shown in Figure 17, and are presented in Table 1 of this Decision Document.

Table 1. Loading Capacities for the LOTR

Flow Zone	**Suspended Sediment TMDL (tons/day)**
Low flow	56
Dry conditions	72
Mid-range flows	91
Moist conditions	114
High flow zones	145

Critical Condition: In 1994, instantaneous sediment loading rates were analyzed at four sites between the Orwell Dam in Otter Tail County. Approximately 10 small tributaries to the LOTR are located in this reach. Results of the data showed that suspended sediment concentrations increased downstream of Orwell Dam, and most sediment was deposited during relatively high flow periods in June and July (Page 6 of the TMDL Report). Therefore, the critical condition for sediment is high flow (i.e. wet-weather conditions), and the critical period is the summer season.

EPA finds the State's approach acceptable and it meets the requirements of this section.

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:

According to MPCA, the turbidity impairment is a result of increased sediment loads during or immediately after high flows and large storm events. The excess sediment, causing the turbidity exceedance, is from fine grained sediments contributed from a variety of nonpoint sources (i.e. wind and water erosion of upland soils, riparian area erosion, and streambank and channel erosion (Page 27 of the TMDL Report)).

Applicable load allocations are found in Table 6 of the TMDL Report and Table 2 of this Decision Document, and are expressed as daily loads for the various flow conditions.

Table 2. Load Allocations for the LOTR

Flow Zone	**Suspended Sediment LA (tons/day)**
Low flow	38
Dry conditions	59
Mid-range flows	83
Moist conditions	97
High flow zones	129

MPCA used a weight of evidence approach that relates the various flow regimes to potential sediment sources (based on proximity or the energy required of certain sources to be considered significant loaders). MPCA determined that predominate sources of suspended sediment during high flows occur from bank or steep river bank contributions. For moist conditions, it was determined that loadings typically originate from upland soils that become saturated and begin contributing to the more efficient transport of eroded materials. During mid-range flow conditions, sources of sediment are typically transported from close proximity erosion areas in the watershed (Page 27 of the TMDL Report).

EPA finds the State's approach acceptable and it meets the requirements of this section.

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.

Comment:
The wasteload allocation for total suspended solids for municipal wastewater treatment facilities in the LOTR watershed is 0. The MPCA explains that the Orwell Reservoir acts like a sink for most sediment and solids from the upstream watershed, providing an upper boundary condition for the LOTR turbidity impairment. MPCA also states that all NPDES permitted point sources in the watershed are located upstream of the Orwell Reservoir, and therefore, are not included in this TMDL. The city of Breckenridge wastewater treatment facility (WWTP) has a NPDES permit, but discharges to a ditch tributary to the Red River downstream of the Otter Tail River. The city of Foxhome is located in the Lower Otter Tail River direct drainage area, but does not have an NPDES permitted treatment facility. Neither Foxhome nor Everdell are expected to ever require NPDES permitted treatment facilities.

MPCA accounts for future growth in the TMDL by assigning WLAs to those communities that may soon be designated as MS4 communities due to population growth. Cities under 5,000 people are generally not designated as MS4s. As such, the city of Breckenridge with a population of 3,559 in 2000 is not a MS4. MPCA provides a WLA to Breckenridge in case it were to be designated a MS4. The WLA is based on the ratio of the area of the city to the area of the LOTR watershed. The city and the LOTR are approximately 1,400 and 52,000 acres, respectively. Assuming an equivalent per acre contribution of sediment from the watershed, less than 3 (2.7) percent of the contributing area could be from an area contributing to urban stormwater runoff, and therefore, a possible wasteload allocation for urban stormwater could be 3% of the total allowable load (TMDL). This would not account for the contribution of sediment from stream bank and channel erosion which would be part of the load allocation. Given that a gross estimate of sediment load by source indicates that stream bank and channel erosion may account for 40 to 50 percent of the sediment contribution to the river, the urban stormwater component could be lowered by about 50 percent. Thus, a conservative WLA for urban stormwater yet to be designated as a point source would be about 1½ percent of the TMDL (Page 26 of the TMDL Report).

Applicable WLAs are found in Table 4 of the TMDL Report and Table 3 of this Decision Document, and are expressed as daily loads for the various flow conditions.

Table 3. Waste Load Allocations for the LOTR

Flow Zone	**Suspended Sediment WLA (tons/day)**
Low flow	1
Dry conditions	1
Mid-range flows	1
Moist conditions	2
High flow zones	2

EPA finds the State's approach acceptable and it meets the requirements of this section.

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:
MPCA determines the margin of safety for each flow condition as the difference between the median flow duration interval and minimum flow duration interval in each zone. Because the allocations are a direct function of flow, accounting for potential flow variability by assigning a MOS to each flow zone is an appropriate way to address the MOS. This is done for each of the five flow conditions.

Applicable MOSs are found in Table 5 of the TMDL Report and Table 4 of this Decision Document, and are expressed as daily loads for the various flow conditions.

Table 4. Margins of Safety for the LOTR

Flow Zone	**Suspended Sediment MOS (tons/day)**
Low flow	17
Dry conditions	12
Mid-range flows	7
Moist conditions	15
High flow zones	14

EPA finds the State's approach acceptable and it meets the requirements of this section.

7. Seasonal Variation

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

Comment:
Seasonal variation was inherently accounted for during the development of the suspended sediment TMDL using the load duration approach. The load duration curve provides the maximum load on any given day, which is determined by the flow present on that day. This

approach inherently accounts for seasonal variations in hydrologic conditions and source loadings in the TMDL. Daily maximum loads are identified for various flow conditions to address the changing loading capacity associated with seasonal flows.

Additionally, MPCA determined that wind erosion of soils may be more acute during spring months, particularly during dry springs, than in winter because frozen soils are less erodible and runoff is uncommon during most winters in the Red River Basin (which includes 52,000 acres of the LOTR Watershed). These considerations combine to result in the greatest soil-erosion rates (from water erosion) expected during runoff events in the spring (before plant growth stabilizes the soils and crop canopy protects soils from the effects of precipitation) and autumn (after harvesting and tillage, when soils are most disturbed if rainfall is greater than normal). Conversely, the lowest soil erosion rates are expected during base flows of winter months, and possibly during mid-summer, when crop vegetation minimizes the erosive effects of direct impact of raindrops. Hence, seasonality is further considered in data analysis (Page 9 of the TMDL Report).

EPA finds the State's approach acceptable and it meets the requirements of this section.

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:
Wilkin County and the Wilkin County Soil and Water Conservation District (SWCD) participated in the Otter Tail River Watershed Improvement Project which made recommendations to protect and enhance surface waters through enforcement of local, state and federal regulations and through the use of existing programs (CRP, EQIP, etc.).

Wilkin County participates in the Red River Basin Water Quality Monitoring Network, which will measure progression the LOTR watershed toward achieving the turbidity requirement. In addition, the Wilkin SWCD is investigating how to quantify erosion transported by precipitation, including overland and streambank erosion, and is developing a demonstration project investigating effectiveness of various agricultural best management practices. As these tools are developed, they will be incorporated into the management of the sub-watershed.

The further evaluation of streambank erosion and hydrologic modifications will be done through an adaptive management approach as funding and time allow.

The local project sponsor will meet quarterly with researchers and the MPCA to review progress and semi-annually thereafter to review achievement of the water quality goal (Page 31 of the TMDL Report).

EPA finds that the TMDL document submitted by MPCA 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 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:
According to MPCA, monitoring conducted through the Red River Basin water quality monitoring program will be used to measure progress towards achieving the water quality goal in the LOTR watershed. This monitoring will compliment the SSC monitoring that was done by the USGS during their two years of study. This monitoring will also be targeted towards developing the relationship between sediment sources in the watershed.

To better quantify existing loads during precipitation events, MPCA proposes the installation of a continuous turbidity monitor. The monitor would capture all precipitation events as well as all flow regimes. To parallel the reduction goals derived from this study, SSC would need to be collected, and discharge measurements made for the first couple of years of operation of the turbidity monitor.

Additional water quality monitoring in the watershed will be done through the MPCA's milestone monitoring program (Page 32 of the TMDL Report).

EPA finds that the TMDL document submitted by MPCA addresses this ninth element.

10. Implementation

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

Comment:
EPA is not required to and does not approve TMDL implementation plans. MPCA however, did identify implementation activities in the watershed. Pages 29-31 of the TMDL Report describes proposed implementation activities in detail.

According to MPCA, some implementation measures include:

- Soil conservation practices designed to reduce wind erosion
- Investigation or evaluation of an erosion ordinance in Wilkin County
- Riparian practices such as buffer strips that will stabilize the riparian area.
- Promote the use of BMPs such as cover crops, residue management, minimum and no-tillage, conservation cropping, and field windbreaks to reduce wind and water erosion.
- Promote local, state, and federal programs that retire land prone to erosion.
- BMPs to hold the water back and release it slower into the drainage system. Soil and surface water storage can come from practices like residue management, native grass plantings, wetland creation, wetland restorations, water and sediment control structures, and road ditch culvert downsizing.
- Channel restoration practices to stabilize streambank erosion could be undertaken to speed up the development of an in-channel flood plain, increase sinuosity, restore stability, and help to return the river to a more natural form. Measures such as armoring the banks with bioengineering techniques or managing the thalweg with rock weirs or veins need to be considered. These techniques should be a part of a larger effort of encouraging stream functions such as restoring meander access to a working flood plain and reintroducing pool riffle and-run characteristics.

EPA finds the submittal addressed 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 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:
For public participation, the Red River Basin Water Quality Team convened public meetings in the Otter Tail watershed on March 24, 2003, June 21, 2004, and June 27, 2005. A draft of the TMDL report was made available to the public on MPCA's website. The public comment period was October 30, 2006 - November 29, 2006, and comments were received during this period from the Minnesota Department of Transportation, the Minnesota Department of Agriculture, and the Minnesota Farm Bureau Federation. The MPCA provided responses to the comments and the U.S. EPA believes that these comments were adequately addressed.

EPA finds the State's approach acceptable and it meets the requirements of this section.

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 Lower Otter Tail River Turbidity TMDL on January 17, 2007, accompanied by a submittal letter dated January 12, 2007. In the submittal letter, MPCA states "MPCA is pleased to provide the Lower Otter Tail River Turbidity Total Maximum Daily Load (TMDL Report) to the U.S. Environmental Protection Agency (EPA) for final review and approval." The submittal letter also includes the dates of the public meetings.

EPA finds the State's approach acceptable and it meets the requirements of this section.

13. Conclusion
After a full and complete review, EPA finds that the TMDL report for the Lower Otter Tail River satisfies all of the elements of an approvable TMDL. This approval addresses 1 waterbody, the Otter Tail River (Breckenridge Lake to Bois de Sioux River), Assessment ID #09020103-502 and one impairment on the 303(d) list (turbidity).

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.