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



SEP 21 2011

REPLY TO THE ATTENTION OF:
WW-16J

Rebecca J. Flood, Assistant Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Dear Ms. Flood:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Load (TMDLs) for the Pomme de Terre River Watershed, including supporting documentation and follow-up information. The Pomme de Terre River (segment ID # 07020002-501) is located in the upper Minnesota River Basin. The TMDL was calculated for Total Suspended Solids (TSS). The TMDL will address the aquatic life use impairment due to turbidity.

The TMDL meets 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 TSS TMDL, addressing turbidity. 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 this TMDL 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,

Tinka G. Hyde
Director, Water Division

Enclosure

cc: Dave L. Johnson, MPCA
Katherine Pekarek -Scott, MPCA

**TMDL:** Pomme de Terre River, Minnesota, Turbidity
**Effective Date:** September 21, 2011

# Decision Document for Approval of Pomme de Terre River, Muddy Creek to Marsh Lake, Turbidity TMDL Report

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 Water body, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the water body as it appears on the State's/Tribe's 303(d) list. The water body 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 water body 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 water body. 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 water body 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; chlorophyl *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

*Comment*:
Location/Description/Spatial Extent: The Pomme de Terre River Watershed is located in the upper Minnesota River Basin (HUC 07020002-501). Figure 2.1 of the TMDL submittal identifies the location of the watershed and subwatersheds. The watershed lies in six counties and is about 875 square miles in size. The river flows north to south originating in Otter Tail County and runs through Grant, Stevens, and Swift Counties where it reaches the Minnesota River at Appleton. Big Stone and Douglas Counties have land area that drains into the Pomme de Terre River through a series of tributaries.

There are about 104 Department of Natural Resources (DNR) protected lakes and 8 protected wetlands located in the watershed, 87 of which are located in Otter Tail and Grant Counties. There are four tributaries that join the Pomme de Terre River, which are listed in Table 2.2 of the TMDL submittal.

The watershed is largely rural. Cultivated land and grassland make up about 77% of the watershed. The remainder of the watershed consists of the following: water and wetlands (approximately 11%); forest (approximately 7%); other lands (approximately 3%); and urban land (approximately 2%). Cultivated land includes Concentrated Animal Feeding Operations (CAFOs). Corn and soybeans make up the majority of the crops grown in the watershed. Tables 2.3 and 2.4 of the TMDL submittal identify the land use in the watershed.

Problem Identification/Pollutant of Concern: This TMDL will address the aquatic life use impairment due to turbidity identified in the Summary Table, Table 1.1 of the TMDL submittal and on the 2008 (most recent approved) category 5 of the Integrated Report (IR).

As stated in the TMDL submittal the watershed was placed on the Minnesota Section 303(d) list (category 5 of the IR) due to failure to meet the turbidity standard. Monitoring data collected documented exceedances of the Water Quality Standard (WQS) for turbidity of 25 NTUs. Turbidity is a dimensionless measurement and thus loading capacity cannot be calculated. Because turbidity is dimensionless a surrogate of total suspended solids (TSS) was used to calculate the loading capacity and determine allocations.

Source Identification: Section 4 of the TMDL submittal describes the turbidity data used for the development of the TMDL. Section 5, Section 6.3 and the summary table describe the sources of turbidity in the stream. A load duration curve method was used to determine when exceedance of the TSS occurred. The mid range flows and the moist condition flows had the greatest percentage of exceedances.

There are eight municipal wastewater treatment facilities in the watershed. Six of the eight municipalities with WWTFs discharge to surface water, while two WWTFs, do not discharge to surface water, but discharge by spray irrigation and groundwater infiltration. Four of the WWTF are pond systems. One of the pond system facilities, Chokio, also has a water treatment plant that has a filter backwash discharge TSS limit. Appleton is the only community with a mechanical system. There are other facilities that hold permits but they discharge to the WWTF. Table 5.3 of the TMDL submittal identifies permittees and whether there is a surface water discharge.

Currently there are no MS4 communities in the watershed, however the City of Morris is designated for MS4 permit coverage because their population exceeds 5,000 and they discharge to an impaired waterbody. The City of Morris currently about 0.79 percent of the watershed and receives 0.79 percent of the loading capacity. To account for future growth (reserve capacity) allocation in the TMDL for Morris as an MS4 community was rounded to 1% of the loading capacity.

The watershed is comprised primarily of row crops (corn and soybeans) and pasture and hay land which contribute to the loading capacity of the stream from nonpoint sources. Other sources of nonpoint source for TSS are background sources, such as natural soil erosions from stream channel and upland areas.

Priority Ranking: Minnesota does not include separate priority rankings for its waters in the TMDL. MPCA prioritizes its waters during the development of the impaired waters list. Development of the TMDL for this segment was scheduled to begin in 2008 with a final TMDL to be submitted in 2011.

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

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

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the water body, 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:*
Designated Use of Waterbody: Pomme de Terre is classified under 2B waters. Class 2B refers to those State waters identified to support aquatic and recreation. Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare.

Water Quality Standard: MN Rules ch. 7050.0222 describes the designated beneficial use for 2B waters is as follows:

*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. This class of surface water is not protected as a source of drinking water.*

MN Rules ch. 7050.0222 subpart 5, turbidity water quality standard for class 2B waters, is **25 Nephelometric Turbidity Units (NTUs).**

Target: The Minn. R. ch. 7050.0222 subp. 4 and 5 set the water quality standard for class 2B waters, which is the classification of the impaired reach in the Pomme de Terre River. If the standards in this part are exceeded, it is considered indicative of a polluted condition which is actually or potentially deleterious, harmful, or injurious with respect to designated uses or established classes of the waters of the state. The numeric criterion for turbidity, based on stream classification of a class 2B stream, is a standard of 25 NTU. Turbidity, however, is a dimensionless measurement and thus loading capacities cannot be calculated. A TSS surrogate is used to calculate loading capacity and to determine allocations.

Most of the Pomme de Terre River is located in the Northern Glaciated Plains Ecoregion. The relationship between turbidity and TSS will depend on contributing water sources and landscape features. Sediment particle size and type will also often change from one portion of a stream to another, which can have an impact on this relationship. To account for this issue, the MPCA recommends that stream specific relationships of turbidity and TSS be made for each stream undergoing a TMDL (when adequate data exist). There were ample data to use the stream specific relationship for this TMDL. Appendix A of the TMDL and Section 5.5 of the TMDL discuss the calculations and modeling used to develop the TSS surrogate target. The TSS surrogate numeric target was determined to be **52 mg/L.**

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

## 3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a water body 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 steam 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: As mentioned earlier, turbidity is a dimensionless unit. TSS was chosen as a surrogate to calculate loading allocations and capacities for turbidity impairments. MPCA determined the loading capacities through the use of the Load Duration Curve (LDC) method (Section 5 and 6 of the TMDL submittal). Using this method, daily loads are developed based upon the flow in the waterbody. Loading capacities were determined for the segment for multiple flow regimes. This allows the TMDL to be represented by an allowable daily load across all flow conditions. Table 1 below identifies the loading capacity for the waterbody and for each flow regime.

Table 1 Loading Capacity

| Flow Zone (percent of flow) | Loading Capacity (tons of TSS/day) |
|---|---|
| High (0-10% ) | 101 |
| Moist (10-40%) | 38.2 |
| Mid (40 – 60%) | 18.0 |
| Dry (60 -90%) | 7.9 |
| Low (90 – 100%) | 2.5 |

The LDC method is a cost-effective TMDL implementation approach, which addresses the reductions necessary to meet WQS for turbidity. The approach also aids in sharing the responsibility for reduction among various municipalities in the TMDL watersheds, which encourages collective implementation efforts.

Flow monitoring data from the Pomme de Terre River USGS gauging site (#05294000) located at Appleton, MN from 1977-2007 was used in this TMDL. The turbidity and TSS dataset used for this TMDL was from 1997 to 2008 at the Appleton USGS monitoring station (STORET ID: S000-195). Transparency tube data were also collected at this site from 1997 to 2008, however, with the abundance of TSS data, the transparency tube data was not utilized. A summary of the data is provided in tables 4.1, 4.2 and 4.3.

It should be noted that these turbidity data were taken in three different measurement units, NTU, Nephelometric Turbidity Ratio Units (NTRU) and Formazin Nephelometric Multibeam Units (FNMU). All the FNMU data were disregarded as the units of measurement were much different than the NTU and NTRU data. A statistical analysis was done by the MPCA and it was shown that the difference between the NTU readings and the NTRU readings was statistically insignificant, so turbidity readings with units of NTU and NTRUs were combined as one dataset (see Appendix A of the TMDL submittal).

Figure 6.1 of the TMDL submittal is the LDC. This plot was derived from the flow data and water quality data described above. Existing loads are compared to the target loads (curve). If the points are below the line no reduction is needed. Points above the line are exceeding the standard and reduction is needed. In addition, the 90th percentile values, and the median values are shown for each flow regime. The 90th percentile value is that reading that is only exceeded by 10% of the data points within a given flow regime. The median value is the reading in the middle of the data set for a given flow regime. The data indicated that exceedances of the TSS surrogate of 52 mg/L are more likely to occur at higher flow rates. Although there are numeric loads for each flow regime the LDC is what is being approved as the Loading Capacity for this TMDL.

Critical Condition: Turbidity levels are generally at their worst following significant storm events which usually occur during the late spring and early summer months. While the highest flow levels in the Pomme de Terre River occur in April and May due to snowmelt runoff (Figure 6.4 of the TMDL submittal), the highest turbidity and TSS levels occur in June-September. Figures 6.5 and 6.6 of the TMDL submittal show a strong correlation when the turbidity and TSS levels are graphed with average monthly rainfall amounts. This shows that high turbidity and TSS levels on the Pomme de Terre River are linked with rainfall events rather than snowmelt runoff.

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

## 4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future 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:*
Load Allocation: The load allocation is discussed in Section 5.9 of the TMDL submittal. MPCA determined available LAs by determining the loading capacity and subtracting out the wasteload allocations and a margin of safety. The load allocation includes nonpoint pollution sources that are not subject to an NPDES permit as well as "natural background" sources such as wildlife. The Table 2 below identifies the load allocation associated for each flow regime.

Table 2 Loading Allocation

| Flow Zone (percent of flow) | High (0-10% ) (tons TSS/day) | Moist (10-40%) (tons TSS/day) | Mid (40 – 60%) (tons TSS/day) | Dry (60 - 90%) (tons TSS/day) | Low (90 – 100%) (tons TSS/day) |
|---|---|---|---|---|---|
| Load Allocation | 86.76 | 30.93 | 12.97 | 3.99 | * |

Note Allocation for "*"In the very lowest flow zone, the total daily loading capacity is very small due to the occurrence of very low flows in the long-term flow record. To account for this unique situation, the WLA and LA are expressed as an equation rather than an absolute number. That equation is:
Allocation = (flow contribution from a given source) X (45 mg/L TSS)
In essence, this amounts to assigning a concentration-based limit to the sources in the low flow zone, with the concentration limit being 45 mg/L TSS from the MN Rules, Chapter 7050.

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

## 5. Wasteload Allocations (WLAs)

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

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets 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:*
The WLA is discussed in Section 5.9 and 6.3 of the TMDL submittal. Through permit requirements, WWTFs were allocated a concentration and/or load based TSS effluent discharge limit. TSS limits were converted into tons per day of TSS. In determining the final WLA's for the facilities in the TMDL, consideration was given for the reserve capacity (RC) component of the TMDL. RC is a requirement by MPCA in TMDL development. To account for RC or potential future growth/expansion, an additional 50 percent was added to each NPDES wasteload allocation in the TMDL calculation.

Table 5.3 of the TMDL submittal (copied below) identifies the NPDES permittes in the watershed and the associated permit limits and final WLA including the reserved capacity for each.

**Table 5.3: Wastewater Treatment Facilities and Industrial Facilities with Numeric Discharge Limits for TSS**

| Name | Permit Number | Wasteload Allocation (Standard Tons TSS/day) | Wasteload Allocation with Reserve Capacity (Standard Tons TSS/day) |
|---|---|---|---|
| Alberta | MNG580002 | 0.050 | 0.075 |
| Appleton | MN0021890 | 0.055 | 0.0825 |
| Del Dee Foods[1] | MNG960027 | 0 | 0 |
| Ashby | MNG580087 | 0.147 | 0.221 |
| Barrett | MN0022713 | 0.171 | 0.256 |
| TWF Industries[2] | MNG960027 | 0 | 0 |
| Chokio | MNG580007 | 0.147 | 0.221 |
| Chokio WTP | MNG640022 | 0.0015 | 0.0022 |
| Dalton[1] | MN0023141 | 0 | 0 |
| Morris | MN0021318 | 1.425 | 2.175 |
| Underwood[1] | MN0025071 | 0 | 0 |
| Denco LLC | MN0060232 | 0.031 | 0.045 |
| **Totals** | | **2.027** | **3.041** |

[1]No discharge to surface water
[2]Discharges to Barrett WWTF

Eight of the permit holders (Alberta, Appleton, Ashby, Barrett, Chokio, Dalton, Morris, and Underwood) are Waste Water Treatment Facilities (WWTF). Of these eight, two do not discharge to surface water; the Dalton WWTF discharges by spray irrigation, and the Underwood WWTF uses infiltration. Five of the WWTFs are lagoon systems which discharge intermittently. These systems are limited by permit to discharge in the spring and late fall, to avoid the low flows. The one remaining WWTF (Appleton) is the only mechanical system and is a continuous discharger. Denco LLC, an ethanol plant located in Morris, was the only industrial facility with a TSS effluent limit (table 5.3). The facility has a TSS concentration limit of 30 mg/L and a maximum design flow of .250 million gallons per day. This equates to a limit of .031 tons per day.

In addition to the NPDES industrial TSS effluent discharge, Denco LLC also has a stormwater outfall. This outfall also has a 30 mg/L TSS effluent limit but no design flow upon which an allocation could be based. This discharge is included in the industrial stormwater WLA.

APEC LLC has a permit to build an ethanol plant in Alberta. The NPDES permit for future facility authorizes the discharge of stormwater from outfall SD001. There is a TSS limit of 30 mg/L but no design flow value on which to calculate a load or allocation. Currently this project is on hold due to failure to obtain approval from the DNR because of issues with the capacity of the aquifer to be able to supply the water needed for plant operation.

The City of Morris is designated for permit coverage because its population exceeds 5000 and is within a half mile of an impaired water body (HUC: 07020002-502, biotic impairment for fish). The City of Morris currently covers about 0.79 percent of the watershed and thus receives 0.79 percent of the loading capacity. To account for future growth (reserve capacity), allocations in the TMDL for Morris as an MS4 community were rounded to 1% of the loading capacity to calculate the wasteload allocation.

The wasteload allocation for construction and industrial stormwater was determined based on percentage of land in the watershed affected by these uses. These uses primarily involve road construction projects, sand and gravel operations and new construction projects. The estimates are determined by the average number of acres affected by these activities per year in the last 4.5 years, divided by the total acreage in the watershed. Estimates as of 2007 are that 0.03% of the land disturbed in the watershed was by construction activities, and 0.06% of land was devoted to industrial activities.

Table 3 identifies all waste loads associated for each type of permitted discharger (MS4 communities, industrial stormwater, and construction storrmwater) in the watershed. These are also identified in the summary Table on page 2 of the TMDL submittal.

Table 3 Waste Load Allocations

| **Flow Regimes** | **High** | **Moist** | **Mid-Range** | **Dry** | **Low** |
|---|---|---|---|---|---|
| Wastewater Treatment Facilities and Industrial Facilities with Numeric Discharge Limits for TSS (NPDES) | 3.041 | 3.041 | 3.041 | 3.041 | * |
| Communities Subject to MS4 NPDES Permit Requirements | 1.01 | 0.382 | 0.18 | 0.079 | * |
| Construction Stormwater (NPDES) | 0.03 | 0.011 | 0.005 | 0.002 | * |
| Industrial Stormwater (NPDES) | 0.06 | 0.023 | 0.011 | 0.004 | * |
| **Wasteload Allocation Total** | **4.14** | **3.45** | **3.23** | **3.12** | * |

Note Allocation for "*"In the very lowest flow zone, the total daily loading capacity is very small due to the occurrence of very low flows in the long-term flow record. To account for this unique situation, the WLA and LA are expressed as an equation rather than an absolute number. That equation is:
Allocation = (flow contribution from a given source) X (45 mg/L TSS)
In essence, this amounts to assigning a concentration-based limit to the sources in the low flow zone, with the concentration limit being 45 mg/L TSS from the MN Rules, Chapter 7050.

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

## 6. Margin of Safety (MOS)

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

*Comments:*
An explicit 10% of the total loading was applied in the TMDL calculation to express the MOS in this TMDL. Section 5.7 of the TMDL submittal discusses the MOS. The 10% MOS is expected to provide an adequate accounting of uncertainty, given that the NPDES permittees have consistently met their TSS discharge limits, and the mechanisms for soil loss from agricultural sources and the factors that affect TSS have been extensively studied over the decades and are well understood.

The WLA's for the lagoons systems discussed earlier were assumed in the calculation as continuous discharge but are limited by permit requirement to discharge in the spring and fall.

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

## 7. Seasonal Variation

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

*Comments:*
The flow duration approach used in developing the TMDL for TSS inherently accounts for the full range of flow condition over the all seasons. The data used cover several years and capture multiple types of flow conditions. EPA agrees that this accounts for seasonal variations.

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

## 8. Reasonable Assurances

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

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

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

*Comments:*
The TMDL submittal identifies agricultural inputs, a contributor to the TSS loads in the Pomme de Terre watershed. Discharges from WWTFs are an additional source in the Pomme de Terre Watershed. Section 8 of the TMDL submittal discusses some mechanisms that give reasonable assurance that the TMDL can be met. Below is a summary of a few of these mechanisms.

- Conservation Tillage
- Vegetative Practices
    - Wetland Restorations
    - Filter Strips
    - Riparian Buffers
    - Grassed Waterways
- Structural Practices
    - Terraces
    - Water and Sediment Control Basins
    - Diversions
    - Grade Control Structures
    - Open Tile Inlet Removal
    - Channel Restoration Practices

- Municipal Stormwater Management
- NPDES Permit Management

- Locally Targeted Implementation

Section 9 of the TMDL submittal discusses additional information on reasonable assurance. Various program and funding sources will be used to implement measures that will be detailed in an implementation plan to be completed in the year following the approval of the TMDL submittal. Funding sources include a mixture of state and federal programs, such as the Environmental Quality Incentive Program (EQUIP), Conservation Reserve Program (CRP), and Clean Water Legacy funding.

*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 nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

*Comments:*
Section 7 of the TMDL submittal discusses the monitoring efforts that will continue in the watershed. A detailed monitoring plan will be included in the implementation plan which will be completed within one year of approval of this TMDL. Monitoring will be conducted by the Pomme de Terre River Watershed Association and the MPCA. Currently, the S000-195 site in Appleton is part of the MPCA's Major Watershed Pollutant Load Network Program. The Pomme de Terre River Watershed is also part of the MPCA's intensive watershed monitoring program. Through this program the watershed is scheduled to be re-tested in 2017.

*EPA finds that the TMDL document submitted by MPCA adequately 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:*

General implementation strategies are discussed in Section 8 of the TMDL submittal. A detailed implementation plan will be developed within a year of approval of the TMDL submittal. The implementation plan will use the potential source assessment, potential erosion factors, land use, public input, and other sources of information to determine which implementation strategies will best reduce turbidity. Implementation activities should focus on the priority areas of Muddy Creek, Dry Wood Creekand, Lower Pomme de Terre sub basins.

The Clean Water Legacy Act (CWLA) is a statute passed in Minnesota in 2006 for the purposes of protecting, restoring, and preserving Minnesota's waters. The CWLA provides the process to be used in Minnesota to develop TMDL implementation plans, which detail the restoration activities needed to achieve the allocations in the TMDL. The TMDL implementation plans are required by the State to obtain funding from the Clean Water Fund. These plans are generally developed by third party groups, but may be developed by MPCA. The Act discusses how MPCA and the involved public agencies and private entities will coordinate efforts regarding land use, land management, water management, etc. Cooperation is also expected between agencies and other entities regarding planning efforts, and various local authorities and responsibilities. These efforts are expected to include informal and formal agreements and joint utilization of technical, educational, and financial resources. These cooperative efforts and coordination activities are to be included in the implementation plans. MPCA expects the implementation plans to be developed within a year of TMDL approval. MPCA reviews and approves all plans.

The CWLA also provides details on public and stakeholder participation in development and implementation of TMDLs and implementation plans, and how the funding will be used. The implementation plans are required to contain ranges of cost estimates for both point and nonpoint source load reductions, as well as for monitoring efforts to determine effectiveness of implementation efforts. MPCA has developed guidance on what is required in the implementation plans (Implementation Plan Review Combined Checklist and Comment, MPCA). To be eligible for CWLA funding, plans must include cost estimates, general timelines for implementation, and interim milestones and measures. The Minnesota Board of Soil and Water Resources administers the Clean Water Fund, and has developed a detailed grants policy explaining what is required to be eligible to receive Clean Water Fund money (FY '11 Clean Water Fund Competitive Grants Policy; Minnesota Board of Soil and Water Resources, 2011).

*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 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:*
Section 10 of the TMDL submittal discusses public participation. Public meetings were held in September of 2008, March of 2009, and November of 2009. The public participation materials can be found in Appendix B. A Technical Advisory Committee (TAC) was formed that served as an advisory and review role for the project. The TMDL was public noticed on MPCA's website. A public notice was posted in the State Register and the public comment period was open from March 1, 2010 through March 31, 2010.

MPCA received comments on the TMDL and they were addressed adequately.

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

## 12. Submittal Letter

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

*Comment:*
The transmittal letter was dated June 6, 2011 from Rebecca J. Flood, Assistant Commissioner, MPCA, to Tinka Hyde, Water Division Director, Region 5 EPA. The letter stated that this was a final TMDL submittal under Section 303(d) of the CWA. The letter also contains the name of the watershed as it appears on Minnesota's Category 5, of the Integrated Report.

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

## 13. Conclusion

After a full and complete review, EPA finds that the TMDL for turbidity for the Pomme de Terre Wateshed satisfies all of the elements of an approvable TMDL. This approval document is

for one water body segment impaired for turbidity using a TSS as a surrogate for a total of one TMDL, addressing one impairment from the 2008 Minnesota 303(d) list. EPA's approval of this document 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 CWA Section 303(d) for those waters.

Table 4

| Waterbody | HUC (AU) | Pollutant | Surrogate Pollutant | Impairments |
|---|---|---|---|---|
| Pomme de Terre River | 07020002-501 | Turbidity | TSS | Aquatic Life Use |

Table 5 Loading Capacities for TSS Pomme de Terre Watershed

| Pomme de Terre River: Muddy Creek to Marsh Lake AU ID: 07020003-501 Watershed area: 560,000 acres - 855 sq. mi. | **Flow Zone** | | | | |
|---|---|---|---|---|---|
| | **High** | **Moist** | **Mid-Range** | **Dry** | **Low** |
| | Values expressed as tons TSS/day | | | | |
| | | | | | |
| **Wasteload Allocation** | | | | | |
| Wastewater Treatment Facilities and Industrial Facilities with Numeric Discharge Limits for TSS (NPDES) | 3.041 | 3.041 | 3.041 | 3.041 | * |
| Communities Subject to MS4 NPDES Permit Requirements | 1.01 | 0.382 | 0.18 | 0.079 | * |
| Construction Stormwater (NPDES) | 0.03 | 0.011 | 0.005 | 0.002 | * |
| Industrial Stormwater (NPDES) | 0.06 | 0.023 | 0.011 | 0.004 | * |
| **Wasteload Allocation Total** | **4.14** | **3.45** | **3.23** | **3.12** | * |
| | | | | | |
| **Load Allocation** | 86.76 | 30.93 | 12.97 | 3.99 | * |
| **MOS** | 10.1 | 3.82 | 1.8 | 0.79 | Implicit |
| **Total Daily Loading Capacity** | **101** | **38.2** | **18.0** | **7.9** | **2.5** |