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

JAN 0 9 2017

REPLY TO THE ATTENTION OF:
WW-16J

Glenn Skuta, Division Director
Water Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Dear Mr. Skuta:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) and supporting documentation for the Little Rock Creek Watershed, located 10 miles north of St. Cloud, Minnesota in the upper Mississippi River Watershed in Benton and Morrison Counties. The TMDLs were calculated for two streams, Little Rock Creek (07010201-548) and Bunker Hills Creek (07010201-511). The designated uses impaired in the streams are aquatic recreational use and drinking water use, classified as Class 1B (protecting drinking water sources) and Class 2A (supporting cold water sport or commercial fish and associated aquatic life) waters. A TMDL was calculated for Total Oxygen Demand (TOD) to address low dissolved oxygen, two TMDLs for nitrates, and one TMDL for temperature, totaling four TMDLs.

These 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 TMDLs. This approval addresses two creeks for TOD, nitrates and temperature, for a total of four TMDLs. 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,

Christopher Korleski
Director, Water Division

wq-iw8-09g

RECEIVED
JAN 1 7 2017
BY:

Enclosure

cc: Celine Lyman, MPCA
Phil Votruba, MPCA

**TMDL:** Little Rock Creek, Benton and Morrison Counties, MN
**Date:** December 2016

# DECISION DOCUMENT FOR APPROVAL OF THE LITTLE ROCK CREEK MINNESOTA TMDLs

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 (chl-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 Minnesota Pollution Control Agency (MPCA), in cooperation with Benton Soil and Water Conservation District (BSWCD), has developed a TMDL to address aquatic life use and drinking water impairments in Little Rock Creek (LRC) and its tributary Bunker Hills Creek (BHC) (Table 1-1 of the TMDL below).

Table 1-1. Little Rock Creek watershed 303(d) impairments addressed by the TMDL.

| Reach | Assessment Unit ID | Year Listed | Affected Use | Pollutant or Stressor |
|---|---|---|---|---|
| Little Rock Creek | 07010201-548 | 2002 | Aquatic life | lack of a coldwater assemblage |
| | | 2010 | Aquatic life | low dissolved oxygen |
| | | 2010 | Drinking Water | nitrates |
| Bunker Hills Creek | 07010201-511 | 2010 | Drinking Water | nitrates |

Both streams are within the LRC watershed, which covers 44,229 acres and is located approximately 10 miles north of St. Cloud, Minnesota within Benton (12,590 acres) and Morrison Counties (31,639 acres) (Figure 1-1 of the TMDL). The LRC watershed is part of the Upper Mississippi River Watershed and is in the North Central Hardwood Forest ecoregion (NCHF). The groundwater watershed is approximately 215,000 acres and was included as part of this study due the suspected impact groundwater has on surface water flows and the observed impairments (Executive Summary of the TMDL, Figure 1-2 of the TMDL).

Rolling hills and high plains comprise the watershed terrain. The eastern part of the watershed, where LRC and BHC originate, is an old glacial drumlin field with mostly silt and clay soil types that have low infiltration capacity. By contrast, the western portion of the watershed is located on an abandoned river terrace with sand and gravel soils with high infiltration rates (Section 1.2 of the TMDL).

The headwaters of LRC and BHC are low-gradient, higher temperature marshland streams that drain agricultural areas. Groundwater discharge is greater in the western edge of the watershed, with more inputs from groundwater occurring near Station 5 in Figure 1-1 of the TMDL. In the middle reaches of LRC, the soils have higher infiltration, and groundwater discharge cools stream temperatures. Further downstream, BHC flows to LRC near MPCA's monitoring Station 11, just upstream of an impounded area that comprises the Sartell Wildlife Management Area (WMA). Beyond the Sartell WMA, the LRC continues south and discharges to Little Rock Lake and eventually to Mississippi River through Harris Channel. This TMDL addresses impairments that occur upstream of Little Rock Lake (Figure 1.1 and Section 1.2 of the TMDL).

Historically, LRC supported a wild brown trout population through the 1980's, but more recent assessments failed to document the presence of brown trout with the exception of a sporadic year in 1999 where ten fingerlings (i.e., a sign of reproducing population) were observed. The stream can support a diversity of other non-trout species, although trout were stocked in the late 1990's in an attempt to reestablish a population. Northern pike, which were present at each monitoring site in the TMDL, likely predate brown trout and may limit their successful recruitment (Section 1.2 of the TMDL).

Land Use: A majority of the LRC watershed is agricultural. According to National Agricultural Statistical Service (NASS) data from 2008, 44% of the watershed's land use is row crop, 27.7% pasture/grass/alfalfa/hay, 14.3% forested, 13.3% wetlands/water, and 0.2% is residential development. With the exception of Little Rock Creek, many of the tributary streams are intermittent and/or have been channelized; approximately 16% of the row crop lands are irrigated (Appendix A of the TMDL). The land use dataset coincides with the water quality and flow monitoring sampling period, and the data source used to estimate land use is applicable for a predominantly agricultural watershed.

Pollutant of Concern: The pollutants of concern are nitrate, heat (i.e., elevated temperatures), and substances contributing to low dissolved oxygen (Section 1.4 of the TMDL).

Problem Identification: Conditions in the LRC watershed were monitored from 2006-2008 by MPCA, Benton SWCD and the United States Geological Survey (USGS). More extensive monitoring of ambient water quality took place in 2008 during conditions that coincided with exceedence of water quality criteria (Appendix B of the TMDL).

*Aquatic Life Uses* - Benton SWCD conducted a stressor identification analysis and among multiple candidate stressors found that low dissolved oxygen, high temperature, and high nitrate levels were the water quality causes of aquatic life use impairment. Benton SWCD also concluded that impoundments and increased groundwater withdrawals were exacerbating impairment (Section 1.2 and Section 1.3 of the TMDL). MPCA completed TMDLs for low dissolved oxygen, nitrates, and temperature and also examined the impacts to water quality from groundwater pumping and impoundments (Section 1.3.5 of the TMDL). A summary of, dissolved oxygen, and temperature conditions in LRC and BHC is below:

- Dissolved oxygen - in the LRC watershed ranged from near 0 to 17 mg/L. A majority of instantaneous readings did not exceed the standard, however DO was consistently low during dry conditions. Benton SWCD's stressor analysis suggested that low dissolved oxygen levels may be impacting aquatic life use, and that warmer temperatures which decrease the solubility of oxygen would exacerbate stressed conditions for aquatic life (Section 1.3.1 of the TMDL, Figure 66 in the LRC Stressor Identification Report).
- Temperatures - exceeded thresholds for physiological stress to coldwater trout species 90% of the time, downstream of the Sartell WMA Station 13 (Section 1.2 of the TMDL, LRC Stressor Identification Report). In a few instances in-stream temperatures exceeded an upper limit known to impact coldwater species (24°C), although not by more than 0.5°C. The highest temperatures occurred between May and August in drier years (Section 1.3.3 of the TMDL, Figure 23 of the LRC Stressor Identification Report).

- Nitrate – The Nitrate Section of the LRC Stressor Identification Report states that nitrates affect fish and invertebrates in streams by converting oxygen-converting pigments to forms that cannot carry oxygen. Some salmonid species had impaired reproductive success when nitrate levels are above 10 mg/L, and can lead to low DO through the nitrification process.

*Drinking Water Uses* – Excess nitrates affect both aquatic life and drinking water use. A majority of nitrate instantaneous readings did not exceed the 10 mg/L drinking water standard, but nine exceedences of the nitrate criterion for drinking water provide the basis for listing six sites impaired by nitrate (Figure 62 of the LRC Stressor Identification Report). Maximum observed concentrations were 27 mg/L in LRC and 12.4 mg/L in BHC (Section 1.3.2, and LRC Stressor Identification Report).

Source Identification:
*Point Sources* - One CAFO (Donald Kloss Farm - MNG#441098) and current or potential construction stormwater sources exist in the LRC watershed. MPCA did not have a current estimate of construction activity, but assumed that 0.1% of the watershed may be subject to construction, such that construction is likely to be a negligible source of the pollutants of concern. No CAFOs are included in the allocations since they are generally not authorized to discharge under the permits. Given that only 0.2% of the watershed is developed and MPCA does not expect a change in growth rate in the near future, the estimate of land area that may be subject to construction is reasonable (Appendix A, Section 3.3 of the TMDL). There are no MS4s in the watershed (Section 3.8 of the TMDL).

*Nonpoint sources*
*Low dissolved oxygen* - Organic matter is a contributing factor to low DO because oxygen is required to break down organic material, resulting in less oxygen available for aquatic life. This demand for oxygen can be measured as carbonaceous biochemical oxygen demand (CBOD), nitrogenous biochemical oxygen demand (NBOD), and sediment oxygen demand (SOD), the latter of which is a sum of oxygen demand (CBOD and/or NBOD) in stream bottom sediments. Organic matter sources include vegetation and in-stream processes, and watershed runoff which can include natural and agricultural vegetation, manure, and leaf litter. Organic matter is not always problematic to streams, until it creates an oxygen demand that surpasses supply (Section 3.4 of the TMDL).

While not pollutants themselves, primary production and water temperature can lower DO to unsuitable levels for aquatic life. Oxygen solubility decreases in warmer waters, and thus low DO is common in warm and dry conditions which in this watershed occurs with drought and increased loss of baseflow due to groundwater pumping. MPCA observed that the lowest DO levels occurred during warm and dry conditions (LRC Stressor Identification Report).

*Nitrates* - Nonpoint sources of nitrates include watershed runoff, fertilizer, septic loads, and groundwater (although nitrate levels in groundwater were low according to available data). Animal unit densities are high in the watershed and as a result, spring runoff can deliver larger loads of nutrients and oxygen demanding substances (Section 3.1 of the TMDL).

*Heat* - Increased surface runoff that results from irrigation is a possible source of heat to the stream. Groundwater is often cooler than surface waters and therefore the loss of groundwater discharge, and increase in surface runoff from irrigated croplands, can increase temperatures. Benton SWCD found groundwater pumping rates have increased by 162% since 2000, which suggests groundwater pumping could be a cause of increased stream temperatures through reductions in baseflow and reduced stream connectivity. Loss of connectivity is a source of heat and increased temperature when portions of the stream may have longer exposure times to solar radiation, rather than if the stream was flowing. An impoundment just upstream of Station 13, which created the Sartell WMA decreases flow volume downstream, and slows streamflow upstream. A greater surface area of the stream is exposed to solar energy as a result which increases stream temperatures. Frequent high temperatures near the impoundments supported this premise. Heat loading was measured and showed 63 percent of maximum weekly average temperature (MWAT) readings exceeded the 19°C criterion downstream of the WMA impoundment, while temperatures exceeded the criterion approximately 10 percent or less at the remaining stations (Section 3.6.1 of the TMDL).

For the water quality parameters discussed above, the characteristics of the groundwater aquifer and significant increases in groundwater pumping since 2000 illustrate that these conditions are decreasing water quality (Figure 1-7, 1-8, and 1-9 in Section 1.3.5 of the TMDL,). Reduced stream flows decrease dissolved oxygen due to less connectivity and aeration. Reduced groundwater flows increase stream temperatures by reducing in-stream connectivity and the lower/lesser volume of cooler water in the stream. Further, volume loss to groundwater reduces assimilative capacity for nutrient and organic matter loads.

<u>Priority Ranking</u>: MPCA identifies target start and completion dates for TMDLs to imply priority ranking. MPCA's target dates reflect: the impact impairments have on the public and aquatic life, the public value of the water resource, likelihood a TMDL can be completed, data availability, local capacity to assist with the TMDL, and MPCA's statewide rotating basin schedule. The lack of coldwater assemblage in LRC that triggered a TMDL study was scheduled to begin in 2004 and to be completed by 2013. The dissolved oxygen and nitrate impairments in LRC and BHC had TMDLs scheduled to begin in 2015 and be completed by 2019 (Section 1.1 of the TMDL).

<u>Future Growth</u>: MPCA did not give an explicit allocation for future growth. Estimated growth in Morrison and Benton Counties[1] since 2000 was 4.69% and 12.34%, respectively. However, MPCA states that the majority of growth occurring in these counties is outside of the Little Rock Creek watershed, and land uses in the LRC watershed are expected to remain similar to current conditions. If MS4 or other stormwater related sources discharge in LRC in the future, a portion of the LA would be transferred into WLA as described in Section 3.8 of the TMDL. All other sources would have to comply with the TMDL. MPCA stated that future groundwater pumping appropriations and the MS4 WLA/LA changes would take TMDL load capacities into account (Section 3.7 of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the first criterion.

---

[1] US Census data, Administrative Record

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

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

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

**Comment:**
Designated Uses - Little Rock Creek is designated as a Class 1B, 2A, and 3B water (MN R. 7050.0470).

- Class 1B waters shall be protected as a drinking water source (MN R. 7050.0222 Subp. 2 and Section 2.0 of the TMDL).
- Class 2A waters shall support cold water sport or commercial fish and associated aquatic life. Class 2A waters shall be suitable for recreation, including bathing, and class 2A is also protected as a source of drinking water (MN R. 7050.0222 Subp. 2 and Section 2.0 of the TMDL).
- Class 3B waters shall permit use for general industrial purposes (MN R. 7050.0223 Subp. 3).

Criteria - The most stringent criteria for the pollutants of concern identified in this TMDL (nitrate, dissolved oxygen, and temperature) for either Class 2A, 1B, and 3B waters are:

- **Dissolved oxygen - 7.0 mg/l** as a daily minimum for Class 2A streams (CBOD, NBOD, and SOD);
- **Nitrate - 10 mg/L** for Class 1B waters; and
- **Temperature – at or below 19°C** MWAT, based on "No material increase" in Class 2A waters (MN R. 7050.0222 Subp. 3a). The temperature TMDL was set to meet or be below 19 °C on a daily basis. (Allocations are in gigajoules per day, a unit of energy required to heat a given volume of water by a number of degrees.) EPA recommended values for trout include 19 °C as a maximum weekly average temperature for growth, and 24 °C as a daily maximum temperature for survival of short term exposure. MPCA

selected the 19 °C value as the target because, when applied so that 19 °C is met on a daily basis, 24 °C will not be exceeded (Section 2.0 of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the second criterion.

## 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:** The loading capacities for oxygen demand (in CBOD, NBOD and SOD) and nitrates in LRC, and nitrates in BHC are shown below in Tables 3-1, 3-2, and 3-3 (Section 3.5 of the TMDL). The temperature TMDL is shown in Table 3-5 below (Section 3.6.2 of the TMDL). The watersheds do have construction/industrial stormwater permit potential at a WLA of 0.1 kg/day for nitrates, but there are no other point sources in the watershed.

**Little Rock Creek**
**Table 3-1 Loading capacity and TMDL allocations for Dissolved Oxygen (AUID: 07010201-548)**

| | *Oxygen Demand (kg/day) from:* | | | | | | *Total Oxygen Demand (kg/day)* | |
|---|---|---|---|---|---|---|---|---|
| | *CBOD* | | *NBOD* | | *SOD* | | | |
| *Source* | *Current* | *TMDL* | *Current* | *TMDL* | *Current* | *TMDL* | *Current* | *TMDL* |
| Load: Sediments | | | | | 227.6 | 40.4 | 227.6 | 40.4 |
| Load: Diffuse Sources | 54.4 | 54.4 | 45.3 | 45.3 | | | 99.7 | 99.7 |
| Wasteload: Construction/ Industrial Activities | 0.1 | 0.1 | 0.1 | 0.1 | | | 0.2 | 0.2 |
| Margin of Safety | | | | | | 15.6 | | 15.6 |
| Total | 54.5 | 54.5 | 45.4 | 45.4 | 227.6 | 56.0 | 327.5 | 155.9 |

**Table 3-2 Loading capacity and Nitrate TMDL allocations for Little Rock Creek (AUID: 07010201-548)**

| | Flow Zone | | | | |
|---|---|---|---|---|---|
| | High (95%) | Moist (75%) | Mid (50%) | Dry (25%) | Low (5%) |
| | kg/day | | | | |
| TOTAL DAILY LOADING CAPACITY | 1,740 | 570 | 340 | 230 | 110 |
| Wasteload Allocation | | | | | |
| Construction/Industrial Stormwater | 2 | 0.6 | 0.3 | 0.2 | 0.1 |
| Load Allocation | 1,564 | 512.4 | 305.7 | 206.8 | 98.9 |
| Margin of Safety | 174 | 57 | 34 | 23 | 11 |
| | | | | | |
| | Percent of total daily loading capacity | | | | |
| Wasteload Allocation | | | | | |
| Construction/Industrial Stormwater | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Load Allocation | 89.9% | 89.9% | 89.9% | 89.9% | 89.9% |
| Margin of Safety | 10% | 10% | 10% | 10% | 10% |

**Table 3-3 Loading capacity and Nitrate TMDL allocations for Bunker Hill Creek (AUID: 07010201-511)**

| | Flow Zone | | | | |
|---|---|---|---|---|---|
| | High (95%) | Moist (75%) | Mid (50%) | Dry (25%) | Low (5%) |
| | kg/day | | | | |
| TOTAL DAILY LOADING CAPACITY | 442.5 | 70.4 | 20.6 | 8.4 | 0.07 |
| Wasteload Allocation | | | | | |
| Construction/Industrial Stormwater | 0.4 | 0.1 | <0.1 | <0.1 | <0.01 |
| Load Allocation | 397.8 | 63.3 | 18.5 | 7.6 | 0.06 |
| Margin of Safety | 44.3 | 7.0 | 2.1 | 0.8 | 0.01 |
| | | | | | |
| | Percent of total daily loading capacity | | | | |
| Wasteload Allocation | | | | | |
| Construction/Industrial Stormwater | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Load Allocation | 89.9% | 89.9% | 89.9% | 89.9% | 89.9% |
| Margin of Safety | 10% | 10% | 10% | 10% | 10% |

**Little Rock Creek**

**Table 3-5 Temperature loading capacities and allocations (AUID: 07010201-548)**

| | Flow Zone | | | | |
|---|---|---|---|---|---|
| | High (5%) | Moist (25%) | Mid (50%) | Dry (75%) | Low (95%) |
| | GJ/day | | | | |
| TOTAL DAILY LOADING CAPACITY | 73.1 | 45.8 | 33.5 | 22.9 | 14.8 |
| Load Allocation | 73.1 | 45.8 | 33.5 | 22.9 | 14.8 |

- A 52% reduction of the total oxygen consumption is needed to meet the TOD TMDL (for the combined CBOD, NBOD and SOD) (Section 3.4.5 of the TMDL) throughout Little Rock Creek
- Reductions of 47% and 29% of nitrates are needed for Little Rock Creek under dry and low flow conditions, respectively (Section 3.5.3 of the TMDL)
- Reductions of 33% and 19% of nitrates are needed for Bunker Hill Creek under moist and mid-range flow conditions, respectively (Section 3.5.3 of the TMDL)
- Overall a 1% reduction in thermal loading across all thermal sources is needed in the Station 13 segment of Little Rock Creek (Section 3.6.2 of the TMDL)

Model Summary: MPCA submitted four TMDLs-- three for DO, nitrate, and temperature in LRC (AUID-548), and the fourth for nitrate in BHC (AUID-511). Surface and groundwater flows were modeled using the Soil and Water Assessment Tool (SWAT) and a Modular Three-Dimensional Finite-Difference Groundwater Flow model (MODFLOW), respectively. The SWAT-MODFLOW analysis characterized the hydrology of the watershed and developed flow duration curves that informed each TMDL. Next, allocations were calculated and assigned to pollutants using a load duration curve (LDC) for nitrate and temperature, and a water quality model, QUAL2K, for oxygen demanding substances. QUAL2K was also used to model water quality conditions under different mitigation actions (Section 3.1 of the TMDL).

Model Selection: MPCA selected each of these models because they are frequently used in similar applications. In addition, the SWAT and MODFLOW had complementary capabilities which provided a more complete and accurate estimation of the water balance, as compared to other surface water models, or just one of these models. For instance, SWAT outputs provided recharge rates that were input to MODFLOW, and in return, MODFLOW simulated groundwater contributions to baseflow and the impacts of groundwater withdrawal to streamflow (Appendix A of the TMDL). The SWAT model estimates runoff from hydrologic response units (HRUs). MPCA used the Soil Survey Geographic Database (SSURGO) to get specific soils information for the LRC watershed, and acquired data on land uses in 2008 from the National Agricultural Statistical Survey (NASS).

*Nitrate TMDLs* - The load duration curve approach can account for variability in flow and load throughout the year. Flow data were divided into flow regimes: high flows (0-10%), moist conditions (10-40%), mid-range flows (40-60%), dry conditions (60-90%) and low flows (90-100%). The data reflect a range of natural occurrences from extremely high flows to extremely low flows. The flow data from Station 13 are combined with nitrate water quality concentration data from the sites for developing the load duration curves (example Figure 3-2 shown below from the TMDL). It can then be determined which flow conditions contribute loads above or below the water quality standard (10 mg/l or TMDL line), shown by the curve in the plot below. The final step is to determine how much reduction needs to occur. Where exceedences were above the 10 mg/l target concentration, the highest percentage load difference above the standard line for each flow regime was used to determine the loading reductions needed, to ensure the reductions would meet standards. The plots show under what flow conditions the water quality exceedences occur; in this case, reductions are needed under dry and low flow conditions. The Bunker Hill Creek LDC indicate its reductions need to occur under different conditions, in the moist and mid-range (Figure 3-3 in the TMDL).

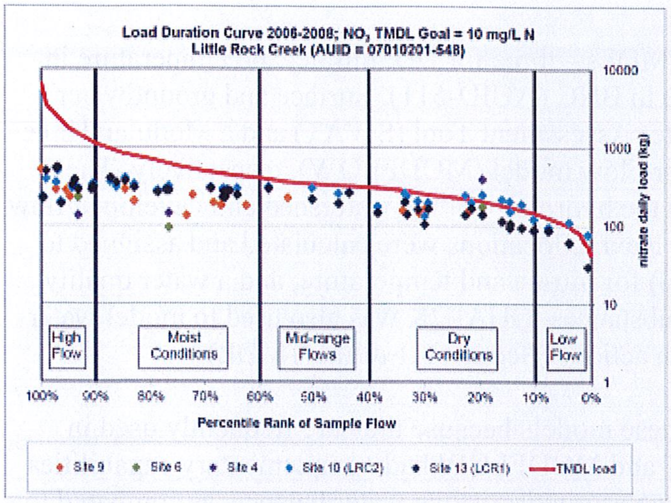


**Figure 3-2** Load duration curve Little Rock Creek (AUID: 07010201-548)

EPA acknowledges that the 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 nitrates were assumed based on the data collected in the watershed, rather than determined by detailed monitoring and sampling efforts. Moreover, specific reductions were not quantified. However, EPA believes the weaknesses discussed in this TMDL are outweighed by the strengths of the TMDL approach, and that this approach is appropriate based upon the information available. In the event that nitrate levels do not meet WQSs in response to implementation efforts described in the TMDL submittal, the TMDL 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 watershed are most appropriate. The LDC is a cost-effective TMDL approach, while still addressing the reductions necessary to meet WQS for nitrates.

*Dissolved Oxygen TMDL* – MPCA and Benton County SWCD measured dissolved oxygen every 15 minutes at Stations 7, 11, and 13 in a three-day interval, and conducted a longitudinal survey at Stations 3-7, 9, 10, 12, and 13 in the late afternoon/early evening on one date and repeated at sunrise on the next day (Appendix B of the TMDL). QUAL2K was used to estimate the relationship between oxygen demand and dissolved oxygen concentrations in LRC in order to calculate the load capacity for oxygen demanding substances. QUAL2K is a steady-state stream model that can account for heat flux and sediment-water interactions, which are important processes affecting dissolved oxygen. This stream model was selected because of these capabilities and that it can segment streams and account for site specific physical characteristics. MPCA conducted a sensitivity analyses in QUAL2K and found DO concentrations were most responsive to SOD in the stream. This was not unexpected because SOD reflects the sum of oxygen demanding substances in stream sediments. Thus relationships between SOD and in-stream DO were used to calculate the loading capacity, but allocations were given to each component that can create oxygen demand (CBOD, NBOD, and SOD). To calculate load capacity, current SOD conditions were determined using DO measurements observed in the stream, and then the SOD value was iteratively adjusted until a DO concentration of 7 mg/l was met.

Allocations to CBOD and NBOD were given equal values but not reduced; reductions in oxygen demand were sought in the SOD allocation. To achieve the TMDL for DO, 80% reduction from SOD will be required (Section 3.4 of the TMDL, Appendix B of the TMDL). Though CBOD and NBOD add to the TOD, they were not changed to meet TMDL requirements, because the past land management practices and riparian use have contributed greater load to the stream sediments (i.e., SOD), and a portion of the load drops out of suspension (CBOD and NBOD), which results in greater SOD in late-summer under low flow conditions (Section 3.4.2 of the TMDL).

*Temperature TMDL-* Though temperature TMDLs are not common, MPCA developed a viable approach for the temperature TMDL. EPA regulations allow for TMDLs to be expressed "in terms of either mass per time, toxicity, or other appropriate measures" (40 C.F.R. Section 130.2(i)), and "load" is defined as "an amount of matter or thermal energy that is introduced into a receiving water." (40 C.F.R 130.2(e)). The appropriate measure is in gigajoules per day, and temperature is expressed as load-based, using flow and temperature monitoring from Station 13; the mid-point flow rate for each flow regime and the MWAT value of 19°C were used to calculate the total heat input reduction under each flow regime. For construction stormwater permits, temperature is not measured and therefore no WLA is assigned. There are no permitted industries in the watershed, so there is no industrial WLA. Loading capacities were adjusted because a portion of the impaired waterway extended beyond Station 13, so LCs were based on the tributary (to Station 13) watershed area as a portion of the total watershed area.

<u>Critical Conditions</u>: MPCA determined that warm and dry (low flow) periods are the critical conditions for water quality impacts to designated uses in LRC. Warm and dry periods increase the stream temperatures, and droughts reduce flows to the stream due to increased groundwater pumping. Low stream flow reduces connectivity which increases temperatures and reduce dissolved oxygen due to lack of aeration.

Spring runoff is a critical condition for loading because it delivers nutrient and organic loads to surface waters that have built up in the watershed during winter months. While the greatest loads may come in during spring runoff, the greatest impacts to water quality and designated uses occur in warm and dry conditions, where dissolved oxygen decreases and nutrients accumulate. High runoff events in the flow record accounted for critical loading conditions, although the highest nutrient concentrations and greatest impact to the stream were observed in warm and dry conditions (Section 3.1 of the TMDL).

MPCA set allocations that reflect critical conditions by using water quality and flow data from 2006-2008 which were warm and dry years (Figure 1-8 of the TMDL). Persistent dry conditions leading up to and through 2006-2008 caused increased groundwater pumping and portions of the creek dried up, thus data from this period would reflect warm and dry critical conditions (Section 1.4 and Section 5.0 of the TMDL). Further, QUAL2K modeling was based on data at a segment with particularly low flow and where oxygen demand was expected to be high so that the model reflected critical conditions (Section 3.2 of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the third criterion.

## 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:**

- For DO, an aggregated LA was used that included in-stream organic matter from sediments (SOD) and diffuse inflow of groundwater (CBOD and NBOD) (Section 3.4.2 of the TMDL).
- The load allocation for nitrates was the loading capacity minus the WLA + MOS (Section 3.5.1 and 3.5.2 of the TMDL).
- The temperature LA was aggregated and assigned to the nonpoint sources since there are no NPDES facilities; there are no considerations for temperature in construction or industrial permits, because there is not a permit limit for temperature. The temperature TMDL is measured as an energy-based allocation and not a load (Section 3.6.2 of the TMDL), and this method is considered an appropriate measure by EPA. (40 C.F.R. Sections 130.3(e) and 130.2(i). LA calculation objectives were to meet the 19°C standard.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fourth criterion.

## 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:** MPCA identified one CAFO (Donald Kloss Farm - Permit #MNG441098) and construction stormwater point sources in the LRC watershed. MPCA stated there are no Municipal Separate Storm Sewer Systems (MS4s), industrial stormwater sources, wastewater treatment plants, or other individually permitted NPDES discharges in the LRC watershed (Section 3.3.4, 3.4, and 3.8 of the TMDL). Point sources in the LRC watershed include:

- CAFO (NPDES permit #MNG441098) WLA = 0 for oxygen demanding substances, temperature, and nitrates (Section 3.3 of the TMDL).
- Construction stormwater (MNR 100001) and future industrial stormwater (MNR050000):
    - Oxygen demand WLAs in Little Rock Creek are 0.1 kg/day for CBOD and NBOD for DO, and the aggregated WLA was calculated as 0.1% of the total loading capacity, assuming 0.1% of the land area in the watershed.
    - Nitrate WLA for Little Rock Creek are in Table 3-2 of the TMDL. The aggregated WLA was calculated as 0.1% of the total loading capacity, assuming 0.1% of the land area in the watershed.
    - Nitrate WLA for BHC are in Table 3-3 of the TMDL. The aggregated WLA was calculated as 0.1% of the total loading capacity, assuming 0.1% of the land area in the watershed.
    - Construction and industrial WLA = 0 for temperature (measured as gigajoules/day). MPCA determined that there are no industrial sources contributing heat to the stream. Construction stormwater permits are primarily for sediment loading and should receive a categorical WLA (for turbidity, DO, nutrient/eutrophication biological indicators or bioassessments); temperature is not assigned a WLA. If future general construction/industrial sources contribute heat to the stream MPCA will transfer a part of the LA to the WLA consistent with methods to derive the temperature TMDL.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fifth criterion.

## 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 allocated 10% of the loading capacity as an explicit MOS for the dissolved oxygen and nitrate TMDLs. MPCA expects this will account for uncertainty in calculations made for the TMDL. MPCA mitigated uncertainty by providing allocations for DO-using substances, nitrate, and heat for five ranges of observed flow volumes. Furthermore, the MPCA examined drought, groundwater pumping, and climate conditions outside of the 2006-2008 period which gives an indication of how data from this period represent the critical conditions that affect impairments (Figure 1-7 and 1-8, Section 3.3.2, and Section 5 of the TMDL).

MPCA provided an implicit MOS for temperature TMDL in their target selection. According to EPA 1986 recommended values, 19 °C as a daily mean can support coldwater assemblages. Thus by calculating the TMDL so that the 19 °C was not exceeded on any given day, then the mean value could be lower than this. Furthermore, the allocations implicitly provide that the 24°C acute criterion would never be exceeded (Section 1.3.3 and 3.3.2 of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the sixth criterion.

## 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:** MPCA considered seasonal variation by collecting flow and water quality data from spring runoff to fall conditions. In June to September of 2008 alone, observed flows ranged from approximately 0.1 to 100 cfs, temperatures ranged from 10 to 25°C, and nitrate ranged from less than 1 mg/l to 27 mg/l. Within stream variation was accounted for in MPCAs assessment of the watershed by sampling and then modeling multiple locations throughout LRC and BHC (i.e., 9 reaches within the 15 km stream corridor). The LDC approach accounts for variation in flows and the varying water quality responses under these conditions. The QUAL2K model was used to assess the impact of streams under various groundwater withdrawal scenarios, and with or without impoundment, which further identifies how the stream may respond under various conditions (Appendix B of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the seventh criterion.

## 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:** Point Sources - Reasonable assurance that the WLAs will be implemented is provided by regulatory actions. According to 40 CFR 122.44(d)(1)(vii)(B), NPDES permit effluent limits must be consistent with assumptions and requirements of all WLAs in an approved TMDL. MPCA implements its storm water and NPDES permit programs, and is responsible for making the effluent limits consistent with the WLAs in this TMDL.

Non Point Sources - Reasonable assurance that LAs will be implemented is provided by an already active stakeholder community, and the activities of an implementing local agency (i.e., BSWCD). A watershed stakeholder committee was formed during development of the TMDL. The committee met throughout TMDL development to discuss the TMDL and management of implementation to follow TMDL approval. This group is comprised of individuals who live in or work in the Little Rock Creek Watershed and includes representatives from each township, as well as commissioners from Benton and Morrison County (Section 6.0 of the TMDL).

The Benton SWCD coordinated development of the TMDL, and will play an important role in implementing BMPs to address the TMDL. It can reasonably be assumed that the effort Benton SWCD has spent developing relationships with stakeholders, and relevant agencies, will facilitate BMP implementation and achieving the TMDL (Section 3.0 and 4.0 of the TMDL).

In addition, the Benton SWCD has developed a Comprehensive Local Water Management Plan for 2011-2018 which describes the goals of the Benton SWCD, and outlines various actions and activities that will be pursued by the District. In particular, the Plan describes the groundwater actions that will support the Little Rock TMDL, including irrigation well discharge monitoring, groundwater sampling, and working with entities to maintain appropriate groundwater usage to protect groundwater supplies. The Plan also includes estimated costs and timeframes.

*Clean Water Legacy Act (CWLA)* - The CWLA statute passed in Minnesota in 2006 to protect, restore, and preserve Minnesota water. The CWLA provides the process to develop TMDL implementation plans in Minnesota, which detail restoration activities needed to achieve TMDL allocations, and which are required by the State to obtain funding from the Clean Water Fund. 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. This would also include informal and formal agreements to jointly use technical, educational, and financial resources. MPCA expects the implementation plans to be developed within a year of TMDL approval.

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. The implementation plans are required to contain ranges of cost estimates for point and nonpoint source load reductions, as well as monitoring efforts to determine effectiveness. MPCA developed guidance on implementation plan requirements (Implementation Plan Review Combined Checklist and Comment, MPCA), which include cost estimates, general timelines for implementation, and interim milestones and measures. The Minnesota Board of Soil and Water Resources also administers the Clean Water Fund, and has developed a detailed grants policy explaining eligibility requirements for Clean Water Fund money (Minnesota Board of Soil and Water Resources, 2011).

MPCA is in its first year of Watershed Restoration and Protection Strategy (WRAPS) for the Mississippi River Sartell Watershed and will be reevaluating Little Rock Creek. The first year of data would suggest that it will likely be remaining on the 303d list (communication with Phil Votruba at MPCA 12/23/16).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the eighth criterion.

## 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:** MPCA identified monitoring recommendations to track progress toward the TMDL and to guide implementation activities (Section 4.0 of the TMDL). These included measurements to be obtained in MPCA's next monitoring cycle, and future analyses of biotic impacts. MPCA suggests that DO, temperature, and nitrate should be monitored under critical conditions (i.e. low flows in dry months). An important factor impacting water quality in the LRC watershed is groundwater-surface water interaction. Pumping volumes are reported to the Minnesota Department of Natural Resources (MDNR) and will be available to track the changes in pumping volume over time. The Benton County Comprehensive Local Water Management Plan Amendment 2011-2018 includes monitoring efforts for both surface waters (including LRC and BHC) as well as groundwater monitoring activities.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the ninth criterion.

## 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:** In accordance with MPCA policy, an implementation plan will be completed within one year of TMDL approval. Section 5.0 of the TMDL identifies implementation actions would result in achieving the TMDL. In summary, MPCA identifies implementation activities to increase groundwater flows to the stream, decrease nutrient and organic loads, and create a more free-flowing system to lessen water quality impacts in the stream. Table 5-1 in the TMDL identifies BMPs that would be applicable to this predominantly agricultural watershed to address the pollutant sources and causes of impairments that were identified in the TMDL.

As noted previously, the QUAL2K model was used to assess the effect of different mitigation actions on water quality. According to the model results, dissolved oxygen and nitrate TMDLs could be achieved if groundwater flow to the LRC and BHC doubled. Further benefits were estimated to occur, with respect to the water quality standards, if the impoundment was also removed. The temperature TMDL would be achieved if both the impoundment was removed and groundwater flow doubled.

To achieve these actions, MPCA states that impacts from the impoundment could be mitigated by constructing a diversion channel around the impoundment to restore in-stream connectivity and still maintain the ecological benefits of the wildlife management areas created by the impoundment. MPCA indicates that water use efficiency needs to improve in order to increase groundwater flows to the stream. MPCA identified BMPs to facilitate more efficient water use in Table 5-1 of the TMDL. Estimated costs to implement the TMDL range from $10 to 20 million, which was based on cost estimates from a 2004 state-level group that examined prior restoration costs of several TMDLs.

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

## 11. Public Participation

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

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

**Comment:** The public participated in several phases of the planning and development of this TMDL. Phase 1 was completed in 2003 to collect, organize and review data. Phase 2 was from 2006 – 2010 and had three tasks: 1) to collect additional data; 2) continue general project administration; and, 3) compile a Stressor Identification Report. Public notice occurred from February 4, 2013 to March 6, 2013. As a result of comments, nine comment letters were received, and two were contested case hearing requests with multiple signatures. As a result of the comments letters, minor clarifications were made.

On November 28, 2016, the State of Minnesota in Court of Appeals filed an Unpublished Opinion in the Matter of the Decision to Deny the Petitions for a Contested Case Hearing. In a brief summary of the findings, relator-landowner petitioners had requested that the MPCA submit more information regarding the natural background levels of nonpoint sources that would affect load allocations in the TMDL study. Relators contend that they will submit evidence from scientific studies, reports, and expert witness testimony to aid in establishing load allocations, but they have not offered specific facts or information (p. 18, footnote 4 of Opinion).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the eleventh criterion.

## 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:** EPA received a submittal letter dated December 30, 2015, signed by Rebecca Flood, MPCA Assistant Commissioner, addressed to Tinka Hyde, EPA Region 5, Water Division Director. The submittal letter identified the name and location of the waterbody for which the

TMDL was developed. The letter included information that there had been a request for a contested case hearing. The letter also stated that the Little Rock Creek TMDL is being submitted for final approval by USEPA under Section 303(d) of the Clean Water Act. Since that time, EPA was told to wait for further instruction pending the completion of the hearing.

EPA received a request from MPCA on November 29, 2016 to restart the Little Rock Creek TMDL review process. This request contained a re-submission of the original TMDL request, as well as copies of the MPCA Contested Case Findings of Fact and the Minnesota Court of Appeals Decision.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the twelfth criterion.

## 13. Conclusion

After a full and complete review, the EPA finds that the TMDLs for Little Rock Creek Watershed for Nitrate, Dissolved Oxygen, and temperature to address fish indices meet all of the required elements of an approvable TMDL. This decision document addresses pollutants in two streams with a total of four TMDLs: one (1) for nitrate in Bunker Hills Creek (07010201-511), and one (1) TMDL for nitrate, one (1) for dissolved oxygen (TOD), and one (1) for temperature in Little Rock Creek (07010201-548) as identified on Minnesota's 2008 303(d) list.

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.