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

JUL 0 7 2016

REPLY TO THE ATTENTION OF:

WW-16J

Glenn Skuta, Watershed Division Director
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) for Kelle's Creek and Sunfish Lake in the Valley Branch watershed, including supporting documentation and follow up information. The Valley Branch watershed is located in Washington County. The TMDLs were calculated for *E. coli* (Kelle's Creek) and total phosphorus (Sunfish Lake). The TMDLs address the impairment of aquatic recreational uses.

EPA has determined that 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 two TMDLs in the Valley Branch watershed. 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 addressing aquatic recreational use, and look forward to future 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: Celine Lyman, MPCA
Rachel Olmanson, MPCA

wq-iw6-12g

TMDL: Kelle's Creek/Sunfish Lake TMDLs, Washington County, MN

Date: JUL 0 7 2016

DECISION DOCUMENT FOR KELLE'S CREEK/SUNFISH LAKE TMDLS, WASHINGTON COUNTY, MN

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see Section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

(1) the spatial extent of the watershed in which the impaired waterbody is located;
(2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
(3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
(4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and

(5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:

Location Description/Spatial Extent:

Kelle's Creek and Sunfish Lake are located in Washington County, Minnesota, east of the Minneapolis metropolitan area. Sunfish Lake is located within the St. Croix watershed, and is approximately 6 miles from the St. Croix River. Kelle's Creek drains directly to the St. Croix River. The two waterbodies are not connected; Sunfish Lake is approximately 9 miles northwest of Kelle's Creek.

Sunfish Lake is 50 acres in size, and has a total watershed area of 566 acres (including the lake). However, portions of the watershed do not drain directly to the lake, so the effective drainage area is 351 acres (Section 3.2.2 of the TMDL). Kelle's Creek is a spring-fed stream approximately 2.8 miles long, with a total watershed of 3.5 square miles. However, a portion of the watershed does not drain directly to Kelle's Creek, so the effective drainage area is 2.5 square miles.

Kelle's Creek was placed on the MPCA 303(d) list of impaired waters in 2012 due to exceedences of the *E. coli* criteria, while Sunfish Lake was placed on the MPCA 303(d) list of impaired waters in 2008 due to exceedences of the phosphorus criteria. Table 1 below lists the waterbodies addressed by this TMDL.

Table 1: Waterbodies Addressed by the Kelle's Creek/Sunfish Lake TMDLs

Waterbody	AUID #	Pollutant	Impairment
Kelle's Creek	07030005-606	*E. coli*	pathogens
Sunfish Lake	82-0107-00	phosphorus	Nutrient/eutrophication biological indicators

Land Use:

The Kelle's Creek watershed is a mixture of undeveloped and agricultural land, with some single family homes in the watershed. The Kelle's Creek watershed is entirely located within the City of Afton. The Sunfish Lake watershed is mainly low density residential and park land. Portions of the watershed are landlocked (i.e., no external drainage), and MPCA determined the landlocked portions will overflow during flood events greater than the 100-year flood event (Section 3.3.2 of the TMDL). The Sunfish Lake watershed is entirely located within the City of Lake Elmo.

The overall land use for the two watersheds is in Table 2 below. MPCA does not anticipate changes in bacteria or phosphorus loading due to changes in land use within the watersheds. MPCA does not expect significant growth in the watershed.

Table 2: Land Use in the Kelle's Creek and Sunfish Lake Watersheds

2006 Land Use	Kelle's Creek		Sunfish Lake	
	Area (acres)	Percent	Area (acres)	Percent
Agricultural	383	24	10.8	3.6
Farmstead	11.3	0.7	3.4	1.1
Open water	-	-	22.5*	7.5
Park/preserve	-	-	56.5	18.8
Institutional	3.0	0.2	-	
Single family Detached	272	17	44.0	14.6
Single Family Attached	-	-	0.9	0.3
Undeveloped	911	58	162.8	54.1
Total	1580.3	100**	300.9	100**

* - not including Sunfish Lake
** - rounded

Problem Identification:
Kelle's Creek was added to the 2012 303(d) list for being impaired due to excessive bacteria. MPCA utilized data from sample stations on the creek to determine that the monthly *E. coli* concentrations in the creek exceeded the *E. coli* criteria. Monthly geometric mean values were exceeded at almost all sites (Figures 3-7 and 3-8 of the TMDL). Kelle's Creek also exceeded the acute portion of the criteria on numerous occasions (Table 3-4 of the TMDL).

Sunfish Lake was added to the 2008 303(d) list for being impaired due to high levels of phosphorus. MPCA reviewed the most recent 10 years of data (2003-2012) and determined that the lake had slightly elevated total phosphorus (TP) concentrations (62 µg/L) based upon the growing season, but had more elevated chlorophyll-a (chl-a) concentrations (35 µg/L) and poor Secchi disc transparency (0.7 m). MPCA selected 2006 as the "average" year based upon water quality data, flow data, and water quality response.

Pollutants of Concern:
The pollutants of concern are *E. coli* and TP.

Pollutants:
E. coli: Bacteria exceedances can negatively impact recreational uses (fishing, swimming, wading, boating, etc.) and public health. At elevated levels, bacteria may cause illness within humans who have contact with or ingest bacteria laden water. Recreation-based contact can lead to ear, nose, and throat infections, and stomach illness.

Total phosphorus: While TP is an essential nutrient for aquatic life, elevated concentrations of TP can lead to nuisance algal blooms that negatively impact aquatic life and recreation (swimming, boating, fishing, etc.). Algal decomposition depletes oxygen levels which stresses benthic macroinvertebrates and fish. Excess algae can shade the water column which limits the distribution of aquatic vegetation. Aquatic vegetation stabilizes bottom sediments, and also is an important habitat for macroinvertebrates and fish. Furthermore, depletion of oxygen can cause phosphorus release from bottom sediments (i.e. internal loading).

Degradations in aquatic habitats or water quality (ex. low dissolved oxygen) can negatively impact aquatic life use. Increased turbidity, brought on by elevated levels of nutrients within the

water column, can reduce dissolved oxygen in the water column, and cause large shifts in dissolved oxygen and pH throughout the day. Shifting chemical conditions within the water column may stress aquatic biota (fish and macroinvertebrate species). In some instances, degradations in aquatic habitats or water quality have reduced fish populations or altered fish communities from those communities supporting sport fish species to communities which support more tolerant rough fish species.

Priority Ranking:
The two watersheds were given priority for TMDL development due to the impairment impacts on public health, the public value of the impaired water resource, the likelihood of completing the TMDL in an expedient manner, the inclusion of a strong base of existing data and the restorability of the water body, the technical capability and the willingness of local partners to assist with the TMDL, and the appropriate sequencing of TMDLs within a watershed or basin.

Source Identification (point and nonpoint sources):
Point Source Identification: MPCA determined that there are no potential point sources for the Kelle's Creek bacteria TMDL. For the Sunfish Lake phosphorus TMDL, MPCA identified two potential point sources, the City of Lake Elmo Municipal Separate Storm Sewer System (MS4) and the Washington County MS4 permitted discharges (Table 3 of this Decision Document). Stormwater from MS4s can transport phosphorus to surface water bodies during or shortly after storm events.

Table 3: Regulated MS4 Permittees in the Sunfish Lake watershed

Permittee	NPDES Permit ID	MS4 area (acres)
City of Lake Elmo	MS400098	295
Washington County*	MS400160	6

* - county roads only

Permitted Construction and Industrial Areas: Construction and industrial sites may contribute phosphorus via sediment runoff during stormwater events. These areas within the Sunfish Lake watershed must comply with the requirements of the MPCA's NPDES Stormwater Program. The NPDES program requires construction and industrial sites to create Stormwater Pollution Prevention Plans (SWPPPs) which summarize how stormwater pollutant discharges will be minimized from construction and industrial sites.

Combined Sewer Overflows (CSOs): There are no CSO communities in the Sunfish Lake or Kelle's Creek watersheds.

Concentrated Animal Feeding Operations (CAFOs): There are no CAFOs within the Sunfish Lake or Kelle's Creek watersheds.

Nonpoint Source Identification: The potential nonpoint sources for the Kelle's Creek bacteria TMDL and the Sunfish Lake phosphorus TMDL are:

Non-regulated stormwater runoff: Non-regulated stormwater runoff can add bacteria to the two waterbodies. MPCA determined that the entire Sunfish Lake watershed is within either the Lake Elmo MS4 land area (98%) or the Washington County MS4 area (2%), and therefore non-regulated stormwater is not a source. In the Kelle's Creek watershed, the sources of bacteria in

stormwater include livestock wastes from small farms along the creek. MPCA performed a survey of the Kelle's Creek watershed to determine the potential for livestock waste to enter the creek (Section 3.5.1 of the TMDL). This survey indicated that several hobby farms are located in the watershed. MPCA noted that the manure from these animals is unlikely to wash off the grazing lands, as none of the farms had direct access to the creek.

Wildlife: Wildlife is a known source of bacteria and phosphorus in water bodies as many animals spend time in or around water bodies. Deer, geese, ducks, raccoons, and other animals all create potential sources of bacteria. Wildlife contributes to the potential impact of contaminated runoff from animal habitats, such as park areas, forest, and rural areas.

Failing septic systems: MPCA noted that failing septic systems, where waste material can pond at the surface and eventually flow into the creek or be washed in during precipitation events, are potential sources of *E. coli* or phosphorus. MPCA contacted the local county health departments, who provided data on septic systems in the two watersheds. MPCA determined that there are septic systems in use in the two watersheds (particularly the Kelle's Creek watershed), and that failing septic systems are a significant source of bacteria in the Kelle's Creek watershed. MPCA also noted that much of the Kelle's Creek watershed is underlain by karst geology. Karst is a term for limestone bedrock which is highly fractured, and where water can quickly infiltrate and migrate in a very short period of time. Pollutants can move quickly through the system with little to no attenuation (Section 3.3.1 of the TMDL).

Atmospheric deposition: Phosphorus may be added via particulate deposition. Particles from the atmosphere may fall onto lake surfaces or other surfaces within the Sunfish Lake watershed. Phosphorus can be bound to these particles which may add to the phosphorus inputs to surface water environments.

Internal loading: The release of phosphorus from lake sediments via physical disturbance from benthic fish (rough fish, ex. carp), from wind mixing the water column, and from decaying curly-leaf pondweed may all contribute internal phosphorus loading to Sunfish Lake. Phosphorus may build up in the bottom waters of the lake and may be resuspended or mixed into the water column when the thermocline decreases and the lake water mixes.

Future Growth:
MPCA expects little change in the allocations between point and nonpoint sources. There may be changes in allocations as land is annexed. These changes will be addressed in the MS4 permit, and any changes in allocations will need to comply with the respective WLA and LA values calculated in the TMDLs.

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

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:

Minnesota Rule Chapter 7050 designates uses for waters of the state. Kelle's Creek is designated as Class 2B water for aquatic life and recreation use (boating, swimming, fishing, etc.). The Class 2B aquatic life and recreation designated use is described in Minnesota Rule 7050.0140 (3):

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

Numeric bacteria criteria:

Through adoption of WQS into Minnesota's administrative rules (principally Chapters 7050 and 7052), MPCA has identified designated uses to be protected in each of its drainage basins and the criteria necessary to protect these uses. The bacteria water quality standards which apply to Kelle's Creek are:

Table 4: Bacteria Water Quality Standards Applicable in the Kelle's Creek TMDL

Parameter	Units	Water Quality Standard
E. coli [1]	# / 100 mL	1,260 in < 10% of samples [2]
		Geometric Mean < 126 [3]

[1] = *E. coli* standards apply only between April 1 and October 31

[2] = Standard shall not be exceeded by more than 10% of the samples taken within any calendar month

[3] = Geometric mean based on minimum of 5 samples taken within any calendar month

Target:

The target is the standard as stated above, for both the geometric mean portion and the daily maximum portion, which is applicable from April 1st through October 31st. However, the focus of this TMDL is on the "chronic" geometric mean standard of 126 cfu/100ml. MPCA determined that utilizing the 126 cfu/100 mL portion of the water quality standard will result in the greatest bacteria reductions within the Kelle's Creek watershed, and that the geometric mean is the more relevant value in determining water quality. MPCA stated that while the TMDL will focus on the geometric mean portion of the water quality standard, both parts of the water quality standard must be met.

Numeric phosphorus criteria:
Numeric criteria for total phosphorus, chlorophyll-a (chl-a), and Secchi Disk (SD) depth are set forth in Minnesota Rules 7050.0222. These three parameters are the eutrophication standards that must be achieved to attain the aquatic recreation designated use. The numeric eutrophication standards which are applicable to Sunfish Lake are those set forth for Class 2B shallow lakes in the North Central Hardwood Forest (NCHF) Ecoregion (Table 5 of this Decision Document). In developing the lake nutrient standards for Minnesota lakes, the MPCA evaluated data from a large cross-section of lakes within each of the State's ecoregions. Clear relationships were established between the causal factor, TP, and the response variables, chl-a and SD (Section 2.2 of the TMDL).

Table 5: MPCA Eutrophication Criteria for shallow lakes in the NCHF Ecoregion

Parameter	Eutrophication Standard
Total Phosphorus (µg/L)	TP ≤ 60
Chlorophyll-a (µg/L)	chl-a ≤ 20
Secchi Depth (m)	SD ≥ 1.0

Target:
MPCA selected a target of 60 µg/L of TP to develop the lake nutrient TMDL. MPCA selected total phosphorus as the appropriate parameter to address eutrophication problems in the lakes because of the interrelationships between TP and chl-a, as well as SD. Algal abundance is measured by chl-a, which is a pigment found in algal cells. As more phosphorus becomes available, algae growth can increase. Increased algae in the water column will decrease water clarity that is measured by SD.

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 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:
The approach utilized by the MPCA to calculate the loading capacity for Kelle's Creek for bacteria are described in Section 4.1 of the final TMDL document.

Kelle's Creek:
For the Kelle's Creek TMDL, a geometric mean of 126 cfu/100 ml *E. coli* for five samples equally spaced over a 30-day period was used to calculate the loading capacity of the TMDLs. MPCA determined that the geometric mean portion of the WQS provides the best overall characterization of the status of the watershed. The EPA agrees with this assertion, as stated in the preamble of *The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule* (69 FR 67218-67243, November 16, 2004) on page 67224, "...the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based."

MPCA stated that while the bacteria TMDL will focus on the geometric mean portion of the water quality standard (i.e., the chronic WQS of 126 cfu/100mL), attainment of the WQS involves the water body meeting both the chronic (126 cfu/100 mL) and acute (1,260 cfu/100 mL) portions of the water quality standard. EPA finds these assumptions to be reasonable.

Typically loading capacities are expressed as a mass per time (e.g. pounds per day). However, for *E. coli* loading capacity calculations, mass is not always an appropriate measure because *E. coli* is expressed in terms of organism counts. This approach is consistent with the EPA's regulations which define "load" as "an amount of matter that is introduced into a receiving water" (40 CFR §130.2). To establish the loading capacities for the Kelle's Creek bacteria TMDL, MPCA used Minnesota's water quality standards for *E. coli* (126 cfu/100 mL). A loading capacity is, "the greatest amount of loading that a water can receive without violating water quality standards." (40 CFR §130.2). Therefore, a loading capacity set at the WQS will assure that the water does not violate WQS. MPCA's *E. coli* TMDL approach is based upon the premise that all discharges (point and nonpoint) must meet the WQS when entering the water body. If all sources meet the WQS at discharge, then the water body should meet the WQS and the designated use.

A flow duration curve (FDC) was created for Kelle's Creek (Figure 4-1 of the TMDL). The FDC was developed from flow data from a sampling site on Kelle's Creek (S004-462). Daily stream flows were necessary to implement the load duration curve (LDC) approach. Flow data from the recreational season (April 1 to October 31) from 2004-2007 and 2011-2013 were used.

The FDC was transformed into a LDC by multiplying individual flow values by the WQS (126 cfu/100 mL) and then multiplying that value by a conversion factor. The resulting points are plotted onto a load duration curve graph. The LDC graph for Kelle's Creek bacteria TMDL has

flow duration interval (percentage of time flow exceeded) on the X-axis and *E. coli* loads (number of bacteria per unit time) on the Y-axis. The LDC used *E. coli* measurements in billions of bacteria per day. The curved line on a LDC graph represents the TMDL for the respective flow conditions observed at that location.

E. coli values from the monitoring sites were converted to individual sampling loads by multiplying the sample concentration by the instantaneous flow measurement observed/estimated at the time of sample collection. The individual sampling loads were plotted on the same figure with the LDC (Figure 4-2 of the TMDL).

The LDC plots were subdivided into five flow regimes; very high flows (exceeded 0–10% of the time), high conditions (exceeded 10–40% of the time), mid-range flows (exceeded 40–60% of the time), low conditions (exceeded 60–90% of the time), and very low flows (exceeded 90–100% of the time). LDC plots can be organized to display individual sampling loads and the calculated LDC. Watershed managers can interpret these plots (individual sampling points plotted with the LDC) to understand the relationship between flow conditions and water quality exceedances within the watershed. Individual sampling loads which plot above the LDC represent violations of the WQS and the allowable load under those flow conditions at those locations. The difference between individual sampling loads plotting above the LDC and the LDC, measured at the same flow, is the amount of reduction necessary to meet WQS.

The strengths of using the LDC method are that critical conditions and seasonal variation are considered in the creation of the FDC by plotting hydrologic conditions over the flows measured during the recreation season. Additionally, the LDC methodology is relatively easy to use and cost-effective. The weaknesses of the LDC method are that nonpoint source allocations cannot be assigned to specific sources, and specific source reductions are not quantified. Overall, MPCA believes and EPA concurs that the strengths outweigh the weaknesses for the LDC method.

Implementing the results shown by the LDC requires watershed managers to understand the sources contributing to the water quality impairment and which Best Management Practices (BMPs) may be the most effective for reducing bacteria loads based on flow magnitudes. Different sources will contribute bacteria loads under varying flow conditions. For example, if exceedances are significant during high flow events this would suggest storm events are the cause and implementation efforts can target BMPs that will reduce stormwater runoff and consequently bacteria loading into surface waters. This allows for a more efficient implementation effort.

TMDLs for Kelle's Creek were calculated as appropriate. There are no regulated permittees discharging the pollutant of concern within the Kelle's Creek watershed (Table 3 of this Decision Document). The load allocation was calculated after the determination of the Margin of Safety (10% of the loading capacity). Other load allocations (ex. non-regulated stormwater runoff, wildlife inputs, etc.) were not split amongst individual nonpoint contributors. Instead, load allocations were combined together into a generalized loading. Review of the LDC indicates that exceedences are occurring under all flow conditions, and therefore control of several source types will be needed. The LDC demonstrates that reductions ranging from 33%-96% are needed to attain standards.

Table 6 of this Decision Document calculates five points (the midpoints of the designated flow regime) on the loading capacity curve. However, it should be understood that the components of the TMDL equation could be illustrated for any point on the entire loading capacity curve. The load duration curve method can be used to display collected bacteria monitoring data and allows for the estimation of load reductions necessary for attainment of the bacteria water quality standard. Using this method, daily loads were developed based upon the flow in the water body. 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. Although there are numeric loads for each flow regime, the LDC is what is being approved for this TMDL.

Table 6: Summary of the Kelle's Creek bacteria TMDL

	Load Duration Curve Zone				
	High	***Moist***	***Mid***	***Dry***	***Low***
	(billion - organisms per day)				
WLA	0	0	0	0	0
LA	2.81	1.70	1.16	0.91	0.69
MOS *(explicit 10%)*	0.31	0.19	0.13	0.10	0.08
TMDL	**3.12**	**1.89**	**1.29**	**1.01**	**0.77**
Existing Load	63.08	2.55	2.30	3.65	--
Reduction %	96%	33%	50%	75%	

EPA concurs with the data analysis and LDC approach utilized by MPCA in its calculation of loading capacities, wasteload allocations, load allocations and the margin of safety for the Kelle's Creek bacteria TMDL. The methods used for determining the TMDL are consistent with U.S. EPA technical memos.[1]

Sunfish Lake:
To develop the TMDL for Sunfish Lake, MPCA utilized P8 (Program for Predicting Polluting Particle Passage thru Pits, Puddles, & Ponds). P8 is a model for predicting the generation and transport of stormwater runoff pollutants in urban watersheds. Continuous water-balance and mass-balance calculations are performed on a user-defined system, and the model generates loadings on a monthly basis (Section 4.2.1.1 of the TMDL). Appendix A of the TMDL contains a detailed discussion of the P8 model.

To account for internal loading of TP, MPCA used the results of a sediment core study from 2006 (Section 4.2.1.4 of the TMDL). Based upon this study, MPCA determined although the lake is shallow, there is enough time where anoxic conditions exist that TP is released from the sediments into the water column. MPCA also noted that curlyleaf pondweed is present in the lake. Curlyleaf pondweed is an invasive specie that dies in the mid-summer, and can contribute TP to the water column when it decomposes.

MPCA also accounted for groundwater impacts in Sunfish Lake, and estimated the amount of groundwater inflow and outflow from the lake (Section 4.2.1.8 of the TMDL). Once the flows were determined, a TP concentration for groundwater was estimated, and the groundwater loading of phosphorus calculated.

[1] U.S. Environmental Protection Agency. August 2007. *An Approach for Using Load Duration Curves in the Development of TMDLs*. Office of Water. EPA-841-B-07-006. Washington, D.C.

Once the various source contributions were calculated, MPCA used a mass-balance model to track both flow and TP load through the lake (Section 4.2.1.10 of the TMDL). The model focused on the growing season average, which is from June 1 to September 30, consistent with the eutrophication standard (Minnesota Rules 7050.0222). Appendices A and B of the TMDL explain in further detail how the mass balance approach was used. Modeling results showed that the current load of TP is slightly above the WQS. Table 7 of this Decision Document shows the TMDL summary for Sunfish Lake.

Table 7: TMDL summary for Sunfish Lake

		Existing TP Load lbs/GS*	Allowable TP load		Load Reduction	
			lbs/GS*	lbs/day	lb/GS*	%
Wasteload Allocation	City of Lake Elmo MS4 (MS400098)	6.0	6.0	0.0489	0	0
	Washington County Right of Way (MS400160)	0.1	0.1	0.0008	0	0
	Construction/Industrial SW	0.3	0.3	0.0025	0	0
	Total WLA	6.4	**6.4**	**0.0522**	**0**	**0**
Load Allocation	SSTS	3.2	0	0	3.2	100
	Atmospheric deposition	5.6	5.6	0.0461	0	0
	Groundwater	0.2	0.2	0.0013	0	0
	Internal load	43.1	37.3	0.3058	5.8	13
	Total LA	52.1	**43.1**	**0.3532**	**9.0**	**17**
MOS (10%)			5.5	0.0450	-	
Total Maximum Daily Load		58.5	**54.9**	**0.4504**	**9.0**	**16**

*- growing season

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

4. Load Allocations (LA)

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

Comment:
Load allocations are addressed in Section 4 of the final TMDL document. The *E. coli* LA for Kelle's Creek is in Table 6 of this Decision Document. Review of the LDC shows that the exceedences occur under all flow conditions, indicating there are both wet and dry-weather sources contributing to the impairment.

The LA for Sunfish Lake is in Table 7 of this Decision Document. MPCA explained that since there is little phosphorus entering the lake due to watershed run-off, reductions are primarily for internal sources (sediment release, curlyleaf pondweed, etc.).

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:
No point sources were identified by MPCA for the Kelle's Creek watershed (Table 6 of this Decision Document). MPCA determined individual WLAs for the two MS4 permittees in the Sunfish Lake watershed (Table 7 of this Decision Document). The MS4 WLAs were based upon the land area under the jurisdiction of the MS4 permit as discussed in Section 4.2.3 of the TMDL. There are no CSOs or CAFOs within the Sunfish Lake watershed, therefore, they were not given an allocation (WLA = 0).

MPCA set aside 0.48% of the total WLA to account for TP loading from construction stormwater and from industrial stormwater. MPCA reviewed the areal coverage of construction permits issued in Washington County from 2007-1013, and calculated coverage to be 0.24%. This was then doubled to account for industrial stormwater, resulting in a 0.48% allocation (0.0025 lbs/day). (Section 4.2.3.1 of the TMDL).

MPCA explained that BMPs and other stormwater control measures should be implemented at active construction sites to limit the discharge of pollutants of concern. BMPs and other stormwater control measures which should be implemented at construction sites are defined in the State's NPDES/State Disposal System (SDS) General Stormwater Permit for Construction Activity (MNR100001). If a construction site owner/operator obtains coverage under the NPDES/SDS General Stormwater Permit and properly selects, installs and maintains all BMPs required under the permit, including those related to impaired waters discharges and any applicable additional requirements found in Appendix A of the Construction General Permit, the stormwater discharges would be expected to be consistent with the WLA in this TMDL.

The WLA for stormwater discharges from sites where there is industrial activity reflects the number of sites in the watershed for which NPDES industrial stormwater permit coverage is required, and the BMPs and other stormwater control measures that should be implemented at the sites to limit the discharge of pollutants of concern. BMPs and other stormwater control measures which should be implemented at the industrial sites are defined in the State's NPDES/SDS Industrial Stormwater Multi-Sector General Permit (MNR050000) or NPDES/SDS General Permit for Construction Sand & Gravel, Rock Quarrying and Hot Mix Asphalt Production facilities (MNG490000). If a facility owner/operator obtains coverage under the appropriate NPDES/SDS General Stormwater Permit and properly selects, installs and maintains all BMPs required under the permit, the stormwater discharges would be expected to be consistent with the WLA in this 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:
The Kelle's Creek bacteria TMDL incorporated an explicit MOS of 10% of the total loading capacity. The MOS reserved 10% of the loading capacity and allocated the remaining loads to point (WLA) and nonpoint sources (LA) (Table 6 of this Decision Document). The use of the LDC approach minimized variability associated with the development of the bacteria TMDLs because the calculation of the loading capacity was a function of flow multiplied by the target value. The MOS was set at 10% to account for uncertainty due to field sampling error and assumptions made during the TMDL development process.

The MOS for the Kelle's Creek bacteria TMDL also incorporated certain conservative assumptions in the calculation of the TMDLs. No rate of decay, or die-off rate of pathogen species, was used in the TMDL calculations or in the creation of load duration curves for *E. coli*. Bacteria have a limited capability of surviving outside their hosts, and normally a rate of decay would be incorporated. MPCA determined that it was more conservative to use the WQS (126 cfu/100 mL) and not to apply a rate of decay, which could result in a discharge limit greater than the WQS.

As stated in *EPA's Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given

combination of these environmental variables was sufficient enough to meet the WQS of 126 cfu/100 mL. Thus, it is more conservative to apply the State's WQS as the MOS, because this standard must be met at all times under all environmental conditions.

The Sunfish Lake nutrient TMDL incorporated an explicit MOS of 10% of the TMDL (Table 7 of this Decision Document). MPCA noted that the 10% is reasonable due to the results of the generally good calibration of the P8 and mass balance models for hydrology and pollutant loading (Section 4.2.1.10 of the TMDL). The calibration results indicate the model adequately characterize the lake, and therefore additional MOS is not needed. MPCA also noted that there is also a implicit MOS due to a conservative modeling assumption. When determining the loading capacity of Sunfish Lake, the model assumed that the spring steady-state concentration in the lake after reduction in the phosphorus load was the same as for existing conditions. In reality, MPCA expects the reductions in the phosphorus loads will result in a lower spring steady-state phosphorus concentration when compared to existing conditions. In other words, the model has underestimated the impacts of phosphorus reductions in the spring, when the internal loads are storing more phosphorus.

The EPA finds that the TMDL document submitted by the MPCA contains an appropriate MOS satisfying 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:
Bacterial loads vary by season, typically reaching higher numbers in the dry summer months when low flows and warm water contribute to their abundance, and reaching relatively lower values in colder months when bacterial growth rates attenuate. Bacterial WQS need to be met between April 1st to October 31st, regardless of the flow condition. The development of the LDC utilized flow measurements from local flow gages. These flow measurements were collected over a variety of flow conditions observed during the recreation season. The LDC developed from these flow records represents a range of flow conditions within the Kelle's Creek watershed and thereby accounted for seasonal variability over the recreation season. TMDL loads were based on sampling that occurred during the recreational season in 2004-2007 and 2011-2013.

Nutrient influxes to Sunfish Lake typically occur during wet weather events. Critical conditions that impact the response of the lake to nutrient inputs occur during periods of low flow in the summer. During low flow periods, nutrients accumulate, there is less assimilative capacity within the water body, water temperatures increase, and algae thrives. Increased algal growth during low flow periods can deplete dissolved oxygen within the water column.

The nutrient targets employed in the Sunfish Lake nutrient TMDL were based on the average nutrient values collected during the growing season (June 1 to September 30). The water quality criteria were designed to meet the period of the year where the frequency and severity of algal growth is the greatest, the mid-late summer. The mid-late summer time period is typically when eutrophication standards are exceeded and water quality in the lakes is deficient. By calibrating

the TMDL development efforts to protect water bodies during the worst water quality conditions of the year, MPCA assumes that the loading capacity established by the TMDL will be protective of water quality during the remainder of the calendar year (October through May).

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

8. Reasonable Assurance

When a TMDL is developed for waters impaired by point sources only, the issuance of a 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:
As Sunfish Lake and Kelle's Creek have been identified as impaired, the Valley Branch Watershed District (VBWD) has placed them as high priority waters for further implementation actions and funding.

Pathogens: Since the sources of bacteria in the Kelle's Creek TMDL are nonpoint source only, reasonable assurance does not strictly apply, However, the Kelle's Creek TMDL does discuss activities in Sections 5 and 7 of the TMDL that provide information on actions and activities to reduce pathogen loading in the watershed. The main entities responsible for overseeing the pollutant reduction activities will be the MPCA, the VBWD, and Washington County.

Washington County has septic system regulations that direct the design and installation of septic systems. Washington County's septic system ordinance requires permitting of all new septic systems, as well as inspection of existing systems when property is transferred (Washington County Septic Ordinance, 2014). Washington County also provides some financial assistance for homeowners to assist in upgrading failing systems (Washington County, 2014). For Kelle's Creek, the VBWD is planning a study with Washington County to further identify karst features and springs to better understand the impacts of the karst on water quality and flow.

The City of Afton is pursuing the development of a large-scale wastewater disposal system to allow the closure of numerous septic systems in Afton (MPCA Draft SDS permit, 2015). Once completed, the new disposal system will reduce the possible impacts of failing septic systems in the Kelle's Creek watershed. The system is expected to be in place in late 2016-early 2017.

Nutrients: The Sunfish Lake TMDL discusses reasonable assurance activities in Sections 5 and 7 of the TMDL. The main entities responsible for overseeing the pollutant reduction activities will be the MPCA, the Valley Branch Watershed District (VBWD), and Washington County.

Reasonable assurance that the WLA set forth in the TMDLs 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's stormwater program is the implementing program for ensuring effluent limits are consistent with the TMDL.

All regulated MS4 communities are required to satisfy the requirements of the MS4 general permit. The MS4 general permit requires the permittee to develop a SWPPP which addresses all permit requirements, including the following six minimum control measures:

- Public education and outreach;
- Public participation;
- Illicit Discharge Detection and Elimination (IDDE) Program;
- Construction-site runoff controls;
- Post-construction runoff controls; and
- Pollution prevention and municipal good housekeeping measures.

A SWPPP is a management plan that describes the MS4 permittee's activities for managing stormwater within their jurisdiction or regulated area. In the event a TMDL study has been completed, approved by EPA prior to the effective date of the general permit, and assigned a wasteload allocation to an MS4 permittee, that permittee must document the WLA in its' application and provide an outline of the best management practices to be implemented in the current permit term to address any needed reduction in loading from a MS4 community.

The stormwater program requires construction and industrial sites to create a SWPPP that summarizes how stormwater will be minimized from a site. Permittees are required to review the adequacy of local SWPPPs to ensure that each plan meets WLA set in the Sunfish Lake watershed TMDL. In the event that the SWPPP does not meet the WLA, the SWPPP will need to be modified prior to the effective date of the next General Permit. This applies to the MS4, Construction, and Industrial Stormwater General Permits.

The VBWD has developed a 2015-2025 Watershed Management Plan (WMP), which details the authorities and responsibilities of the VBWD. The WMP discusses the water quality of both Kelle's Creek and Sunfish Lake, the improvements that have been made recently to the watersheds, the improvements scheduled for the two watersheds. For example, VBWD has committed funding to assist Washington County in identifying and improving failing septic systems countywide, which includes both Kelle's Creek and Sunfish Lake. The VBWD has also received a $199,000 grant from the state in 2015 to conduct an erosion survey and conduct ravine stabilization efforts in the Silver Lake watershed. The VBWD expects that controlling erosion from ravines will reduce sediment and associated phosphorus loads. The VBWD has

identified an in-lake alum treatment for Sunfish Lake as an action in 2016-2018, in conjunction with the Minnesota Department of Natural Resources. MPCA determined that reductions from the MS4 loads were unlikely to be feasible, since most of the watershed is parkland, low-intensity development (homes on larger rural lots), and undeveloped land. Given the relatively small amount of TP reduction needed (16%) MPCA and VBWD have determined that the ongoing and future actions will be sufficient to attain WQS in Sunfish Lake.

Clean Water Legacy Act: The CWLA was passed in Minnesota in 2006 for the purposes of protecting, restoring, and preserving Minnesota water. The CWLA provides the protocols and practices to be followed in order to protect, enhance, and restore water quality in Minnesota. The CWLA outlines how MPCA, public agencies and private entities should coordinate in their efforts toward improving land use management practices and water management. The CWLA anticipates that all agencies (i.e., MPCA, public agencies, local authorities and private entities, etc.) will cooperate regarding planning and restoration efforts. Cooperative efforts would likely include informal and formal agreements to jointly use technical, educational, and financial resources.

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. In part to attain these goals, the CWLA requires MPCA to develop Watershed Restoration and Protection Strategies (WRAPS). The WRAPS are required to contain such elements as the identification of impaired waters, watershed modeling outputs, point and nonpoint sources, load reductions, etc. (Chapter 114D.26; CWLA). The WRAPS also contain an implementation table of strategies and actions that are capable of achieving the needed load reductions, for both point and nonpoint sources (Chapter 114D.26,Subd. 1(8); CWLA). Implementation plans developed for the TMDLs are included in the table, and are considered "priority areas" under the WRAPS process (Watershed Restoration and Protection Strategy Report Template, MPCA). This table includes not only needed actions but a timeline for achieving water quality targets, the reductions needed from both point and nonpoint sources, the governmental units responsible, and interim milestones for achieving the actions. MPCA has developed guidance on what is required in the WRAPS (Watershed Restoration and Protection Strategy Report Template, MPCA). The WRAPS report for the Valley Branch watershed was finalized in February, 2016. Several of the implementation actions listed in the WRAPS report are already underway.

The Minnesota Board of Soil and Water Resources administers the Clean Water Fund as well, and has developed a detailed grants policy explaining what is required to be eligible to receive Clean Water Fund money (FY 2014 Clean Water Fund Competitive Grants Request for Proposal (RFP); Minnesota Board of Soil and Water Resources, 2014).

The EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL

should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:
The final TMDL document outlines the water monitoring efforts in the Kelle's Creek and Sunfish Lake watersheds (Section 6 of the TMDL). Water quality monitoring is a critical component of the adaptive management strategy employed as part of the implementation planning efforts for the these watersheds.

Follow-up monitoring is integral to the adaptive management approach. Monitoring addresses uncertainty in the efficacy of implementation actions and can provide assurance that implementation measures are succeeding in attaining water quality standards, as well as inform the ongoing TMDL implementation strategy. To assess progress toward meeting the phosphorus TMDL targets, routine monitoring of the lakes will continue to be a part of the VBWD annual monitoring program. The VBWD currently monitors the two waterbodies, and plans on continuing this monitoring in the future (Section 6 of the TMDL; VBWD Watershed Management Plan, 2015).

The EPA finds that this criterion has been adequately addressed.

10. Implementation

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

Comment:
Implementation strategies are outlined in Section 7 of the final TMDL document. The MPCA presented a variety of possible implementation activities which could be undertaken within the two watersheds. Table 7.4 of the TMDL presents several Best Management Practices (BMPs) along with estimated costs.

Pathogens:
Urban/residential stormwater reduction strategies: The land use in the Kelle's Creek watershed is composed of mainly undeveloped land with small amounts agricultural areas. MPCA determined that non-riparian pastures and failing septic systems are the sources needing control in the watershed (Section 7.3.1 of the TMDL) MPCA believes that reducing bacteria sources near the creek will improve water quality.

Pasture and Manure Management BMPs: Controlling bacterial sources, especially manure from small farms in the watersheds, was identified as a significant implementation activity by MPCA. Livestock exclusion from streams, alternate watering facilities, adoption of rotational grazing, and manure management are expected to reduce bacteria loads entering the creek. The VBWD

conducted a resident survey in the Kelle's Creek watershed, and residents noted that they were interested in obtaining information to better control pasture and manure management in the watershed. MPCA and VBWD have begun outreach efforts to provide more information and highlight where technical and financial assistance are available.

Riparian Area Management Practices: Protection of streambanks within the watershed through planting of vegetated/buffer areas with grasses, legumes, shrubs or trees will mitigate bacteria inputs into surface waters. These areas will filter runoff before the runoff enters into the creeks.

Septic System Control: MPCA discussed how the City of Afton has obtained funding and land to develop a community-sized septic system which would provide more consistent treatment of waste and be located to prevent flooding issues, which are an additional problem in the watershed. Permitting and environmental review is underway, and construction is expected in 2016.

Public Education Efforts: Public programs will be developed to provide guidance to the general public on bacteria reduction efforts and their impact on water quality. These educational efforts could also be used to inform the general public on what they can do to protect the overall health of the Kelle's Creek.

Nutrients:
Alum Treatment: MPCA and the VBWD have investigated the possible application of alum to control phosphorus in the sediments. A partial treatment was performed in 2008, which had little impact on the TP levels.

Septic System Controls: Washington County and VBWD have an active septic system program, governed by the Washington County ordinance.

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

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 participation section of the TMDL submittal is found in Section 8 of the TMDL. Throughout the development of the Kelle's Creek and Sunfish Lake TMDLs the public was given various opportunities to participate in the TMDL process. The MPCA encouraged public participation through public meetings and small group discussions with stakeholders within the watershed.

The MPCA held kickoff meetings in June, 2013, to present the existing data. A second set of meetings were held in August, 2014, to present the results of the source assessment and preliminary WLA and LA allocations. A third set of meetings were held in May, 2015 to present the final data and implementation strategies.

The draft TMDL was posted online by the MPCA at (http://www.pca.state.mn.us/water/tmdl). The 30-day public comment period began on September 28, 2015 and ended on October 27, 2015. The MPCA received three public comments and adequately addressed these comments. Comments were submitted by the Minnesota Department of Agriculture (MDA), Prairie Island Indian Community, and the Citizens for Valley Creek (CVC).

The comments from the MDA focused on identification of potential pathways that pathogens may take from pastures to Kelle's Creek. MDA had several suggestions for site visits and BMP use that could reduce or prevent pollutant migration. MPCA responded that while site visits had not been performed, the land owners in the area had been contacted, and BMP activities discussed and installation was beginning. MPCA added the MDA to the list of potential partners in Section 7.3.1.1 of the TMDL, and will look to coordinate with MDA to provide information as needed.

The Prairie Island Indian Community provided comments on the Watershed Restoration and Protection Strategy (WRAPS) report, regarding concerns about cultural artifacts and resources in Valley Branch, located in Washington County. The Tribe sent a second letter dated January 15, 2016, in which they stated "After review of the document, I conclude that there are no imminent issues that would cause impacts to historical resources."

The third comment was from the CVC, regarding the status of Valley Creek. The CVC raised concerns over the Large Subsurface Wastewater Treatment system proposed for construction north of Afton. The CVC raised several concerns over the location of the site, and noting the potential for impacts on Valley Creek, which is a cold-water trout stream. MPCA noted that Valley Creek is not listed as impaired by Minnesota, and the removal of individual septics systems will have a beneficial impact on water quality in Kelle's Creek. The EPA notes that the State Disposal System draft permit has undergone extensive review by Minnesota, and was re-public noticed after revisions were made to the permit (MPCA letter to Afton, 2015).

The EPA finds that the TMDL document submitted by the MPCA satisfies the 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 waterbody, and the pollutant(s) of concern.

Comment:
The EPA received the final Kelle's Creek and Sunfish Lake TMDL document, submittal letter and accompanying documentation from the MPCA on April 7, 2016. The transmittal letter explicitly stated that the final Kelle's Creek TMDL for bacteria and Sunfish Lake TMDL for phosphorus were being submitted to EPA pursuant to Section 303(d) of the Clean Water Act for EPA review and approval. The letter clearly stated that this was a final TMDL submittal under Section 303(d) of CWA. The letter also contained the name of the watershed as it appears on Minnesota's 303(d) list, and the causes/pollutants of concern. This TMDL was submitted per the requirements under Section 303(d) of the Clean Water Act and 40 CFR 130.

The EPA finds that the TMDL transmittal letter submitted for the Kelle's Creek and Sunfish Lake watersheds by the MPCA satisfies the requirements of this twelfth element.

13. Conclusion

After a full and complete review, the EPA finds that the TMDLs for the Kelle's Creek (*E. coli)* and Sunfish Lake (phosphorus) satisfy all of the elements of approvable TMDLs. This approval is for 2 TMDLs, addressing aquatic recreational use impairments due to bacteria and phosphorus.

The EPA's approval of these TMDLs extends to the water bodies which are identified In Table 1 of this Decision Document with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. The EPA is taking no action to approve or disapprove TMDLs for those waters at this time. The EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.