



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

MAR - 1 2017

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 eight lakes in the Pope County 8 Lakes watershed, including supporting documentation and follow up information. The Pope County 8 Lakes watershed is located in Pope and Douglas Counties. The TMDLs were calculated for total phosphorus. 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 eight TMDLs in the Pope County 8 Lakes 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,

A handwritten signature in blue ink, appearing to read "Ch. Korleski".

Christopher Korleski  
Director, Water Division

Enclosure

cc: Celine Lyman, MPCA  
Paul Wymar, MPCA

wq-iw7-35g



TMDL: Pope Lakes TMDLs, Pope County, MN

Date: **MAR - 1 2017**

## **DECISION DOCUMENT FOR THE POPE COUNTY LAKES TMDLS, POPE 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:**

The Pope County 8 Lakes (Pope Lakes) watershed is located in Pope and Douglas Counties in west-central Minnesota. There are eight lakes addressed in the TMDL (Table 1 below). The lakes are located in the Chippewa River watershed. Reno Lake and Ann Lake typically are internally drained. Lake Leven drains through several creeks and small lakes to Gilchrist Lake, which drains to the East Chippewa River and ultimately to the Chippewa River. Malmedal Lake drains to Strandness Lake, then to Pelican Lake, through several small creeks and lakes, and then to Lake Emily, which drains to the Chippewa River (Figure 1 of the TMDL). The lakes range in size from 86 acres to 3500 acres (Table 2 below). The lakes were placed on the MPCA 303(d) list of impaired waters in 2002 or 2006 due to high phosphorus levels.

**Table 1 Waterbodies Addressed by the Pope Lakes Watershed TMDL**

Waterbody	AUID #	Pollutant	Year listed
Ann	61-0122-00	Total phosphorus	2006
Emily	61-0180-00	Total phosphorus	2002
Gilchrist	61-0072-00	Total phosphorus	2002
Leven	61-0066-00	Total phosphorus	2002
Malmedal	61-0162-00	Total phosphorus	2002
Pelican	61-0111-00	Total phosphorus	2002
Reno	61-0078-00	Total phosphorus	2002
Strandness	61-0128-00	Total phosphorus	2006

**Table 2: Lake Morphometry**

Lake Name	Surface Area	Average Depth	Maximum Depth	Lake Volume	Littoral Area	Depth Class	Total Drainage Area
Units	acre	feet	feet	ac-ft	%	--	acre
Ann	365	12	17	4525	70-91	shallow	4882
Emily	2262	5	6	10855	100	shallow	132826
Gilchrist	324	10	24	3240	61	deep	72098
Leven	281	18	33	5058	57	deep	9415
Malmedal	197	3	5	610	100	shallow	6584
Pelican	511	18	34	9198	80	deep	19720
Reno	3509	15	23	52635	34	deep	5497
Strandness	86	5	7	402	100	shallow	11824

**Land Use:**

The Pope Lakes watershed is a primarily agricultural watershed, with cultivated crops use predominating, along with some grassland, water, and scattered urban use present. The land uses for the subwatersheds are in Table 3 of this Decision Document. Almost all of the subwatersheds are in Pope County; a small portion lies in neighboring Douglas County. MPCA does not anticipate significant changes in phosphorus loading due to changes in land use within the Pope Lakes watershed.

**Table 3 Land Uses in the Pope Lakes Subwatersheds**

Lake	Area (Acres)	Cultivated Crop	Deciduous Forest	Developed	Grassland	Open Water	Pasture
Ann	4882	3254	281	308	90	253	631
Emily	132826	81104	6513	7302	3506	13477	15562
Gilchrist	72098	4420	3624	3036	2799	4044	9280
Leven	9415	5934	692	352	200	19	1768
Malmedal	6584	5409	72	330	31	90	398
Pelican	19720	13430	1078	1572	513	979	2111
Reno	5497	3680	319	261	31	292	829
Strandness	11824	9059	245	596	139	590	817

**Problem Identification:**

The eight impaired lakes are on the 2014 draft 303(d) list due to excessive phosphorus. MPCA utilized data from the MPCA lake sampling program to determine that all eight of the lakes are impaired due to elevated levels of total phosphorus and the related response criteria for chlorophyll-a and Secchi depth.

**Pollutant:**

While total phosphorus (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 Pope Lakes watershed was given priority for TMDL development due to the impairment impacts on aquatic life, the public value of the impaired water resource, the likelihood of completing the TMDL in an expedient manner, and the technical capability and the willingness of local partners to assist with the TMDL. Water quality degradation has led to efforts to improve the overall water quality within the Pope Lakes watershed, and to the development of a TMDL.

**Pollutant of Concern:**

The pollutant of concern is phosphorus.

**Source Identification (point and nonpoint sources):**

Point Source Identification: The point sources for the Pope Lakes nutrient TMDLs are:

*NPDES permitted facilities:* There are two individual NPDES facilities within the Pope Lakes watershed which discharge phosphorus, the City of Lowry Wastewater Treatment Facility (WWTF) and the Starbuck WWTF. The Lowry WWTF is a pond system that discharges periodically to a tributary to Malmedal Lake. The Starbuck WWTF is a pond system that discharges periodically to Lake Emily (Section 3.1.1 of the TMDL).

*MS4 communities:* MPCA did not identify any MS4 permittees within the Pope Lakes watersheds.

*Permitted Construction and Industrial Areas:* Construction and industrial sites may contribute phosphorus via sediment runoff during stormwater events. These areas within the Pope Lakes 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 Pope Lakes watershed.

*Concentrated Animal Feeding Operations (CAFOs):* There is one CAFO within the Pope Lakes watershed, which is subject to the NPDES discharge regulations. By rule, CAFOs and other feedlots are generally not allowed to discharge to waters of the State (Minnesota Rule 7020.2003). CAFOs generate manure which may be spread onto fields. Runoff from fields with spread manure from CAFOs can be exacerbated by tile drainage lines, which channelize the stormwater flows. Tile-lined fields and channelized ditches enable pollutants to move into surface waters. Runoff from manure spread onto fields in accordance with federal and state requirements is unregulated as a nonpoint source, and is included as a portion of the load allocation (LA) for the Pope Lakes watershed TMDLs.

Nonpoint Source Identification: The potential nonpoint sources for the Pope Lakes nutrient TMDLs are:

*Non-regulated stormwater runoff:* Non-regulated stormwater runoff can add phosphorus to the lakes. The sources of phosphorus in stormwater include livestock wastes from small farms along the creeks and lakes as well as runoff from row crop agriculture. MPCA performed a survey of the watershed to determine the potential for feedlots. This survey indicated that numerous feedlots are present in the watershed (Figure 5 of the TMDL). MPCA noted the potential for manure from these animals is very likely washing off the land surface during rain events, and contributing to the impairment of the creeks. Phosphorus can also run off from fields as a result of fertilizer use, both chemical as well as manure.

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

*Upstream Loads:* Some of the lakes are connected to upstream lakes, which contribute phosphorus (Section 3.2.2 of the TMDL). Because of this connectivity, to attain water quality standards in the downstream lakes, water quality in the upstream lakes must be attained or maintained.

*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 phosphorus. MPCA contacted the Pope County Land and Resource Management office, who provided data on septic systems in the watershed. MPCA determined that while there are septic systems in use in the watershed, there is little to correlate the density of systems to the water quality impairments. Based upon this information, MPCA demonstrated that failing septic systems are a possible source for localized impairments, but have limited impact on a watershed scale (Section 3.2 of the TMDL).

*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 the lakes. 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:**

The entire areal extent of the Pope Lakes watershed is agricultural in nature. MPCA does not expect the load allocations to change in the future. The wasteload and load allocations were calculated for all current sources. Any expansion of point or nonpoint sources will need to comply with the respective WLA and LA values calculated in the Pope Lakes watershed 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. The Pope Lakes waterbodies addressed by this TMDL are all designated as Class 2B waters for aquatic recreation use (boating, swimming, fishing, etc.). The Class 2 aquatic recreation designated use is described in Minnesota Rule 7050.0140 (3):

*“Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare.”*

**Standards:**

Narrative Criteria: Minnesota Rule 7050.0150 (3) set forth narrative criteria for Class 2 waters of the State:

*“For all Class 2 waters, the aquatic habitat, which includes the waters of the state and stream bed, shall not be degraded in any material manner, there shall be no material increase in undesirable slime growths or aquatic plants, including algae, nor shall there be any significant increase in harmful pesticide or other residues in the waters, sediments, and aquatic flora and fauna; the normal fishery and lower aquatic biota upon which it is dependent and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of the fish and other biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters.”*

Numeric 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 numeric criteria that must be achieved to attain the aquatic recreation designated use. The numeric standards which are applicable to all the lakes are those set forth for Class 2B shallow and deep lakes in the North Central Hardwood Forest (NCHF) Ecoregion or the Northern Glaciated Plains (NGP) Ecoregion (Table 4 of this Decision Document). Ann Lake, Lake Emily, Malmedal Lake, and Strandness Lake are defined as shallow lakes, while Gilchrist Lake, Lake Leven, Pelican Lake, and Reno Lake are defined as deep lakes. 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 2.3 of the TMDL).

**Table 4: MPCA Eutrophication Criteria for shallow and deep lakes**

Parameter	NCHF		NGP	
	Eutrophication Standard (shallow)	Eutrophication Standard (deep)	Eutrophication Standard (shallow)	Eutrophication Standard (deep)
Total Phosphorus (µg/L)	TP ≤ 60	TP ≤ 40	TP < 65	TP < 90
Chlorophyll-a (µg/L)	chl-a ≤ 20	chl-a ≤ 14	chl-a < 22	chl-a < 30
Secchi Depth (m)	SD ≥ 1.0	SD ≥ 1.4	SD > 0.9	SD > 0.7
Lakes	Ann, Malmedal, Strandness	Gilchrist, Leven, Pelican, Reno	Emily	

Target:

MPCA selected a target of 40 µg/L of TP (deep lakes) or 60 µg/L of TP (shallow lakes) to develop the lake nutrient TMDLs (65 µg/L for Lake Emily). 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.

In developing the lake nutrient standards for Minnesota lakes, 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. MPCA anticipates that by meeting the TP concentration the response variables chl-a and SD depth will be attained and the lakes addressed by the Pope Lakes TMDLs will achieve their designated beneficial uses. For Lakes to achieve their designated beneficial uses, the lake must not exhibit signs of eutrophication and must allow water-related recreation, fishing, and aesthetic enjoyment. MPCA views the control of eutrophication as the lake enduring minimal nuisance algal blooms and exhibiting desirable water clarity.

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 approach utilized by the MPCA to calculate the loading capacity for the Pope Lakes for nutrients was described in Section 3 of the TMDL.

Runoff modeling: The watershed for each of the eight lakes is mainly agricultural in nature. To determine the runoff from the land uses in each watershed, MPCA used the Simple Method. The Simple Method uses a combination of precipitation and anticipated runoff for the land cover in each subwatershed. The volume of water delivered to the waterbody is approximated. Each land use has an Event Mean Concentration (EMC) calculated to estimate the loading rate of phosphorus from runoff. Table 6 of the TMDL contains the various EMC values by land use. MPCA noted that each land use inherently includes management practices that occur in the land use. For example, the EMC for cultivated crops includes the runoff from fertilizers and manure applied to the land use. MPCA applied local land use practices as well. Stream buffer locations were determined for the watersheds, and an additional removal rate was applied where the buffers were present.

MPCA also accounted for loads not represented in the Simple Method. Loads from upstream lakes were calculated based upon in-lake TP concentrations and runoff loads from the watersheds. MPCA explained that runoff from small feedlots were not addressed in the Simple Method. To account for these sources, MPCA reviewed feedlot data containing types and numbers of animals, and estimated the amount of manure generated for the feedlots, and then estimated the runoff potential based upon data from the Minnesota Department of Agriculture (Section 3.2 of the TMDL).

Loads from atmospheric deposition of phosphorus were also estimated, based upon results from studies in Minnesota (Section 3.2.3 of the TMDL). Loads from failing subsurface sewage treatment systems (SSTS) were estimated based upon data from Pope County. MPCA reviewed the potential for groundwater to be a source of TP to the lakes; only Reno Lake has the potential for groundwater as a source. Internal loading was reviewed as a source; only Ann Lake has sufficient internal loading to require additional loading being assigned.

In-Lake modeling: Once the watershed loading calculations were developed for each lake, MPCA used BATHTUB to determine the water quality based upon the TP loading. The BATHTUB model applies a series of empirical equations derived from assessments of lake data and performs steady state water and nutrient calculations based on lake morphometry and tributary inputs. The BATHTUB model requires fairly simple inputs to predict phosphorus

loading. The model accounts for pollutant transport, sedimentation, and nutrient cycling. The model was used to determine both the current load and the load needed to meet or maintain water quality standards for each lake (Section 3.3 of the TMDL).

The Canfield-Bachmann subroutine was used in the BATHTUB model to determine how each lake responded to the TP loading. The model parameters were adjusted until the model predictions fit the sample data. Once the data were calibrated, the source loads were reduced until the in-lake concentration met the appropriate WQS (Section 3.3 of the TMDL)

MPCA subdivided the loading capacity among the WLA, LA and MOS components of the TMDL (Tables 5-12 of this Decision Document). These calculations were based on the critical condition, the summer growing season, which is typically when the water quality in the lake is degraded and phosphorus loading impacts are the greatest. TMDL allocations assigned during the summer growing season will protect the lakes during the worst water quality conditions of the year. The MPCA assumed that the loading capacities established by the TMDL will be protective of water quality during the remainder of the calendar year (October through May).

EPA supports the data analysis and modeling approach utilized by MPCA in its' calculation of wasteload allocations, load allocations and the margin of safety for the Pope Lakes TMDLs. Additionally, EPA concurs with the loading capacities calculated by the MPCA in the Pope Lakes TMDLs and protection strategies. EPA finds MPCA's approach for calculating the loading capacities to be reasonable and consistent with EPA guidance.

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

**TMDL Lakes**

**Table 5: TMDL Summary for Ann Lake (Lake ID: 61-0122-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA*</b>	<b>5.5</b>	<b>0.015</b>	
	Construction SW	0.20	0.00055	
	Industrial SW	5.3	0.0146	
<b>Load</b>	<b>Total LA</b>	<b>1060</b>	<b>2.9</b>	
	<b>MOS</b>	1184	0.32	
	<b>Total Load</b>	<b>1184</b>	<b>3.2</b>	91%

\* WLA = 0 for Blair Farms, Inc. CAFO (MN0066273)

**Table 6: TMDL Summary for Lake Emily (Lake ID: 61-0180-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>11872</b>	<b>33</b>	
	Construction SW	2.0	0.0055	
	Industrial SW	53	0.15	
	Starbuck WWTF (M0021415)	912	2.5	
	Lowry WWTF (MNG580123)*	134	0.37	
<b>Load</b>	<b>Total LA</b>	<b>9584</b>	<b>26.3</b>	
<b>MOS</b>		<b>1187</b>	<b>3.3</b>	
<b>Total Load</b>		<b>11872</b>	<b>33</b>	<b>35%</b>

\* 0.37 lbs/day is the total WLA, and is not cumulative.

**Table 7: TMDL Summary for Gilchrist Lake (Lake ID: 61-0072-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>20.4</b>	<b>0.056</b>	
	Construction SW	0.75	0.002	
	Industrial SW	19.6	0.054	
<b>Load</b>	<b>Total LA</b>	<b>3907</b>	<b>12</b>	
<b>MOS</b>		<b>436</b>	<b>1.2</b>	
<b>Total Load</b>		<b>4363</b>	<b>12</b>	<b>48</b>

**Table 8: TMDL Summary for Lake Leven (Lake ID: 61-0066-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>7.3</b>	<b>0.020</b>	
	Construction SW	0.27	0.00074	
	Industrial SW	7.0	0.019	
<b>Load</b>	<b>Total LA</b>	<b>1397</b>	<b>3.8</b>	
<b>MOS</b>		<b>156</b>	<b>0.43</b>	
<b>Total Load</b>		<b>1560</b>	<b>4.3</b>	<b>35%</b>

**Table 9: TMDL Summary for Malmedal Lake (Lake ID: 61-0162-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>77.2</b>	<b>0.21</b>	
	Construction SW	0.125	0.00034	
	Industrial SW	1.9	0.0052	
	Lowry WWTF (MNG580123)	134	0.37	
<b>Load</b>	<b>Total LA</b>	<b>297</b>	<b>0.81</b>	
<b>MOS</b>		<b>42</b>	<b>0.12</b>	
<b>Total Load</b>		<b>416</b>	<b>1.14</b>	<b>72%</b>

**Table 10: TMDL Summary for Pelican Lake (Lake ID: 61-0111-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>141.8</b>	<b>0.39</b>	
	Construction SW	0.29	0.00079	
	Industrial SW	7.5	0.021	
	Lowry WWTF (MNG580123)*	134	0.37	
<b>Load</b>	<b>Total LA</b>	<b>1360</b>	<b>3.73</b>	
	<b>MOS</b>	167	0.46	
<b>Total Load</b>		<b>1669</b>	<b>4.6</b>	35%

\* 0.37 lbs/day is the total WLA, and is not cumulative.

**Table 11: TMDL Summary for Reno Lake (Lake ID: 61-0078-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA*</b>	<b>6.1</b>	<b>0.017</b>	
	Construction SW	0.23	0.00063	
	Industrial SW	5.9	0.016	
<b>Load</b>	<b>Total LA</b>	<b>1181</b>	<b>3.2</b>	
	<b>MOS</b>	132	0.36	
<b>Total Load</b>		<b>1319</b>	<b>3.6</b>	36%

\* WLA = 0 for Blair Farms, Inc. CAFO (MN0066273)

**Table 12: TMDL Summary for Strandness Lake (Lake ID: 61-0128-00)**

		Allowable TP load		Load Reduction (estimated)
		lbs/yr	lbs/day	
<b>Wasteload</b>	<b>Total WLA</b>	<b>137.9</b>	<b>0.38</b>	
	Construction SW	0.14	0.00038	
	Industrial SW	3.8	0.0104	
	Lowry WWTF (MNG580123)*	134	0.37	
<b>Load</b>	<b>Total LA</b>	<b>618</b>	<b>1.7</b>	
	<b>MOS</b>	84	0.23	
<b>Total Load</b>		<b>840</b>	<b>2.3</b>	54%

\* 0.37 lbs/day is the total WLA, and is not cumulative.

#### 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:**

MPCA recognized the LA for the lake nutrient TMDLs as originating from several sources, including atmospheric deposition, internal loads, and upstream lakes (Section 3.2 of the TMDL). MPCA did not divide the LA further (Tables 5-12 of this Decision Document).

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 assigned a portion of the WLA to two regulated WWTF permittees within the Pope Lakes TMDLs, and set aside a percentage of each TMDL's loading capacity for construction and industrial stormwater. Tables 5-12 of this Decision Document provide the WLAs for the WWTF permittees in the Pope County Lakes watershed. WLAs were assigned based on the necessary TP load reductions for achieving the TP water quality target.

Lowry WWTF (MNG580123): The WLA is **0.37 lbs/day** (134 lbs/yr). The Lowry WWTF discharges to a tributary of Malmedal Lake. The WLA is based upon the 1 mg/L effluent limit and a discharge of 42 days per year (16 million gallons).

Starbuck WWTF (MN0021415): The WLA is **2.5 lbs/day** (912 lbs/yr). The Starbuck WWTF discharges into Minnewaska Lake, which drains to Emily Lake. The Starbuck WLA is based upon the WLA developed for the Lower Minnesota River Dissolved Oxygen TMDL assumptions of 1 mg/L TP effluent limit at 70% of the design flow. MPCA also determined that the WLA is protective for Emily Lake (Section 5.2.1 of the TMDL).

MPCA set aside 0.02% of the total WLA to account for TP loading from construction stormwater based upon an analysis of construction permits issued over several years. MPCA also set aside 0.5% for TP loading from industrial stormwater. This WLA accounts for any construction stormwater or industrial stormwater generated within the TMDL watersheds (Section 3.2.2 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 wants to clarify language in the TMDL. Section 3.2.2 of the TMDL discusses construction and industrial stormwater discharges, and notes the conditions under which a permittee will be considered "in compliance" with the provisions of the TMDL. The EPA notes that TMDLs are planning documents, and thus compliance is not applicable. In addition, compliance will be addressed through the Minnesota NPDES program.

There are no CSOs within the Pope Lakes watershed, therefore, CSOs were not given an allocation (WLA = 0). One CAFO is present within the watershed (Blair Farms, Inc., MN0066273). The WLA for this facility is 0.

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 Pope Lakes nutrient TMDLs incorporated an explicit MOS of 10% of the loading capacity (Tables 5-12 of this Decision Document). MPCA noted that the 10% is reasonable due to the results of the generally good calibration of the BATHTUB model for pollutant loading (Section

3.1 of the TMDL). The calibration results indicate the model adequately characterizes the waterbodies, and therefore additional MOS is not needed.

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:**

Nutrient influxes to the Pope Lakes typically occur during summer wet weather events. Critical conditions that impact the response of the lakes 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 Pope Lakes nutrient TMDLs 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 numeric criteria 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 capacities established by the TMDLs 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:**

The Pope Lakes TMDL discusses reasonable assurance activities in Section 15 of the TMDL. Lake-specific implementation needs are discussed in the lake-specific sections of the TMDL (Sections 4-11 of the TMDL). The main entities responsible for overseeing the pollutant reduction activities will be the MPCA, the Pope County Soil and Water Conservation District (SWCD), and the Chippewa River Watershed Project (CRWP).

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 NPDES program is the implementing program for ensuring effluent limits are consistent with the TMDL.

The CRWP is a cooperative volunteer group dedicated to protecting the Chippewa River watershed. The CRWP has monitored the Chippewa River and selected tributaries for over a decade. One of the tributaries is the Little Chippewa River, which connects several of the Pope County Lakes. In addition, the CRWP has worked on a project to restore the water quality in several lakes, including Gilchrist Lake. The project is focused on reducing sediment and phosphorus loads to Gilchrist Lake, through the use of conservation tillage, cover crops, filter strips, sediment control basins, etc. (Simon Lake and Lake Gilchrist Restoration and Protection in the Chippewa River Watershed; CRWP, 2015).

The Pope County SWCD has developed a comprehensive planning document titled "The 2013-2023 Pope County Water Plan" (the Plan), which lays out the projects and goals of Pope County. The Plan contains detailed information on work already performed in the county, as well as planned projects and projects underway. The Plan also contains specific goals and projects for each impaired watershed, including those in the Pope Lakes TMDL. The efforts are prioritized by the county, and include estimated costs and potential funding sources.

The CRWP, the Pope County SWCD, and other local entities may apply for other funding provided by the State of Minnesota. These funding opportunities are grants under the Clean Water Legacy Act (CWLA) and funding through the Clean Water Partnership program. The groups may also explore the funding mechanisms provided through the federal Section 319 grant program which provides cost share dollars to implement voluntary activities in the watershed beyond those required by NPDES permits.

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.

MPCA noted that several TMDLS have been developed and approved in the Chippewa River watershed. In 2004, EPA approved the *Chippewa River Un-ionized Ammonia TMDL*, which identified control measures that have had impacts on water quality in the Chippewa River watershed. Also in 2004, EPA approved the *Lower Minnesota River Dissolved Oxygen TMDL*. Phosphorus reductions were identified as needed to attain water quality standards, and a WLA was developed for the Starbuck WWTF. Additional non-point source phosphorus reductions were identified for the Chippewa River watershed, including the Pope County Lakes. In 2006, the *Chippewa River Fecal Coliform TMDL* was completed for segments of the Chippewa River. MPCA noted that sources of bacteria are often sources of phosphorus (i.e., manure, septic discharge, etc.). Measures to control the bacteria loads from the TMDL will likely reduce phosphorus loads as well. MPCA also noted that the draft *Chippewa River Watershed TMDL* was public noticed in September 2016. This TMDL addresses impairments due to bacteria, total suspended solids, and total phosphorus for numerous waterbodies in the Chippewa River watershed, including waters in the Pope Lakes watershed.

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 Pope Lakes TMDL is incorporated in the Chippewa River WRAPS effort. The WRAPS plan was on public notice until September, 2016, and is being finalized.

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 Pope Lakes watershed (Section 14 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 Pope Lakes watershed.

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, monitoring of the lakes will continue to be a part of the Pope County SWCD monitoring program. The CRWP will continue monitoring water quality and flow in rivers in the watershed, which will obtain information on the transport and fate of phosphorus between lakes in the watershed (2013-2023 Pope County Watershed Plan, 2013).

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 Sections 4-11 of the TMDL. The MPCA presented a variety of possible implementation activities for each lake which could be undertaken within the Pope Lakes watershed. The Pope County SWCD and CRWP have had a long history of water quality protection for these lakes, dating back to the late 1980's.

As noted in Section 8 of this Decision Document, specific details of implementation actions and best management practices (BMPs) are contained in the "2013-2023 Pope County Water Plan". The Plan lists detailed actions needed, as well as funding needs and cost-share requirements.

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 is found in Section 16 of the TMDL document. Throughout the development of the Pope Lakes watershed TMDLs the public was given various opportunities to participate in the TMDL process. The MPCA, Pope County, Pope County SWCD and other stakeholders held meetings with the public in 2009. After the meeting, a Local Advisory Group (LAG) was formed, and consisted of various stakeholders who meet several times in 2009 and 2010. A Technical Advisory Committee (TAC) was also formed to provide technical assistance to development of the TMDL. The TAC was made up of various technical staff from MPCA, Minnesota Department of Natural Resources, Minnesota Department of Agriculture, and several other agencies.

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 July 23, 2012, and ended on August 22, 2012. The public notice period was reopened from September 17, 2012 to October 17, 2012.

MPCA received numerous comments on the TMDL project. Comments have been split into three groups in this Decision Document; the Minnesota Department of Transportation (MnDOT), several land owners within the watershed who sent in individual letters addressing similar issues, and a letter signed by 10 landowners in the watershed.

In the first group, the MnDOT letter raised concerns over the WLA for stormwater sources, in particular the WLA for construction stormwater sources, and the need of a clear mechanism for transfer between LA and WLA as urbanization grows in the watershed. MnDOT calculated that the WLA per acre would be extremely small, less than the TP load from a forested land use. MPCA reviewed the calculations and noted that the construction stormwater allocations were revised to account for the relative small area anticipated to be impacted by construction activities. The TMDL was revised to provide additional WLA for the sources. MPCA noted that since the first development of the TMDL in 2012, language has been developed describing the transfer of load between the LA and WLA due to growth in stormwater permittees. The new language is in Section 12 of the TMDL.

In the MPCA response, MPCA reiterated the language in the TMDL concerning “compliance” as noted in Section 5 of this Decision Document. The EPA wants to clarify again that TMDLs are planning documents, and thus compliance is not applicable. In addition, compliance will be addressed through the Minnesota NPDES program.

The second group of comments was from several landowners in the watershed, and raised three main issues; the possible drawdown of Lake Emily to address internal phosphorus loadings, additional implementation actions needed for Reno Lake, and the diversion of Little Chippewa River from Lake Emily. Several commentors were strongly against the drawdown of Lake Emily, noting that it would have a significant impact on the fishing in the lake. In response to the comments, the MPCA noted that this was simply an example of what could be done and was not intended to be a proposed course of action. As a result of the comments, the MPCA removed discussion of the drawdown from the TMDL. Several commentors requested additional actions in and around Lake Reno to improve water quality. MPCA invited the commentors to raise these concerns and ideas for implementation actions during the WRAPS process.

The third set of comments came from several landowners in the watershed, who signed one letter. These commentors raised several issues, including 1) concerns over the accuracy of the pollutant source discussions, 2) errors in the MOS, 3) the impacts of internal loads, 4) the impacts of point source loads, and 5) increased discussion of phosphorus changes in the lakes.

MPCA reviewed the comments, and provided responses as summarized below.

- 1) The commentors noted that there was significant use of estimates, approximations, and assumptions in the current source loading discussions. The commentors suggested that providing the values as exact numbers rather than ranges or qualifying language undermined the scientific rigor of the TMDL. MPCA explained that the estimates of existing loads and relative contributions were completed to guide implementation. The TMDL allocations were developed using a water quality response model, and further allocations and reductions of subloads will be determined during the implementation phase. The commentors were invited to take part in the public participation process for the implementation plans.
- 2) The commentors noted that the MOS was incorrectly cited in several places in the TMDL document. MPCA noted the commentors were correct and revised the TMDL report accordingly.
- 3) The commentors noted that internal loading was described in the TMDL as a result of several components, such as bottom-feeding fish, wind mixing, and release of TP from curlyleaf pond weed. They requested that the MPCA estimate or otherwise approximate the impacts of these various components. MPCA noted that while these components are likely present for each of the lakes, there is not enough data to determine further analysis of internal loading at this time. MPCA reiterated that this analysis will be a goal of the upcoming implementation plan for each lake, and invited the commentors to participate in that process.
- 4) The commentors also question the WLA for Malmedal Lake. The Lowry WWTF discharges through a drain into Malmedal Lake, and the commentors questioned whether the WLA for the facility should be reduced. MPCA explained that the Lowry WWTF currently discharges 3% of the TP load to Lake Malmedal, and has little impact on water quality. The facility was recently upgraded to increase operational efficiency, and therefore the MPCA has reduced the WLA slightly.

- 5) The commentors also requested further discussion of how TP responds in lakes seasonally, such as from the growth and decay of aquatic plants, and through seasonal temperature changes. The commentors believe this additional information will help stakeholders better understand the dynamics of TP impacts, as well as better inform the TP controls needed. MPCA agreed with these comments. Additional information was added to the TMDL, and MPCA noted that this information will be highlighted in the upcoming implementation plan meetings.

EPA reviewed the comments and the MPCA responses. EPA believes that MPCA adequately addressed the comments and updated the final TMDL with appropriate language.

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:

EPA received the final Pope Lakes TMDL document, submittal letter and accompanying documentation from the MPCA on August 29, 2016. The transmittal letter explicitly stated that the final Pope Lakes TMDLs 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.

A revised TMDL was submitted on January 23, 2017. During the review of the final TMDL submittal, an error was discovered in the Malmedal Lake TMDL table, involving the Lowry WWTP WLA. The public notice version of the TMDL contained the correct WLA. All stakeholders and permittees had the opportunity to review the correct WLA.

The EPA finds that the TMDL transmittal letter submitted for the Pope Lakes watershed by the MPCA satisfies the requirements of this twelfth element.

## 13. Conclusion

After a full and complete review, EPA finds that the TMDLs for the Pope Lakes watershed for phosphorus satisfy all of the elements of approvable TMDLs. This approval is for **eight TMDLs** (Ann Lake, Lake Emily, Gilchrist Lake, Lake Leven, Malmedal Lake, Pelican Lake, Reno Lake, and Strandness Lake), addressing eight lakes for aquatic recreational use impairments due to phosphorus.

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. 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.