



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

NOV 24 2014

REPLY TO THE ATTENTION OF:

WW-16J

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

Dear Ms. Flood:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) for segments impaired due to nutrients in the Lower Mississippi River Watershed (LMRW), including support documentation and follow up information. The LMRW is located in central Minnesota in Dakota and Ramsey Counties. The LMRW nutrient TMDLs address impaired aquatic recreation use due to excessive nutrients (phosphorus).

EPA has determined that the LMRW nutrient TMDLs meet the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations set forth at 40 C.F.R. Part 130. Therefore, EPA approves Minnesota's 3 nutrient TMDLs. The statutory and regulatory requirements, and EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Minnesota's efforts in submitting these TMDLs and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. Peter Swenson, Chief of the Watersheds and Wetlands Branch, at 312-886-0236.

Sincerely,

A handwritten signature in cursive script that reads "Tinka G. Hyde".

Tinka G. Hyde
Director, Water Division

Enclosure

cc: Celine Lyman, MPCA
Rachel Olmanson, MPCA

wq-iw8-43g

**DECISION DOCUMENT FOR THE LOWER MISSISSIPPI RIVER LAKES TMDLS,
DAKOTA AND RAMSEY COUNTIES, 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 Lower Mississippi River (LMR) Lakes watershed is located in Dakota and Ramsey Counties, Minnesota, just south of St. Paul. The watershed is overseen by the Lower Mississippi River Watershed Management Organization (LMRWMO). The overall watershed is 35,500 acres, and contains numerous small lakes and streams. This TMDL effort addresses 4 lakes (3 with TMDLs, 1 with a protection strategy) in the LMR Lakes watershed. The project initially addressed 5 lakes, but during the development of the TMDL, MPCA determined that Rogers Lake is meeting the aquatic recreation use and although no TMDL was developed for the lake, MPCA developed a protection strategy to maintain the existing water quality (Section 11 of this Decision Document). MPCA also did not develop a TMDL for Pickerel Lake. Pickerel Lake is separated from the Mississippi River by a narrow spit of land, and when the river level rises, water from the river backflows into Pickerel Lake. During extreme events, the river level rises above the lake boundary, and the Mississippi River inundates Pickerel Lake. MPCA determined that further study is needed for Pickerel Lake, and therefore no TMDL was calculated. The Decision Document will focus on the three impaired lakes.

The watersheds for each of the three lakes are fairly small. Lake August and Thompson Lakes are land locked and have no discharge other than seepage to groundwater. Sunfish Lake is mainly a seepage lake, but does have an outlet that rarely conveys water to a marsh complex, into a small creek and then into the Mississippi River. The lakes have been monitored by MPCA and LMRWMO over the last decade, and as a result, were placed on the MPCA 303(d) list in 2010 (Lake Augusta and Sunfish Lake) and the draft 2014 list (Thompson Lake). Table 1 below lists the waterbodies addressed by this TMDL, and Table 2 below lists the lake morphometry for the impaired lakes.

Table 1: Waterbodies Addressed by the LMR Lakes TMDL

Waterbody	AUID #	Pollutant	Impairment
Sunfish Lake	19-0050	TP	Nutrient/Eutrophication
Lake Augusta	19-0081	TP	Nutrient/Eutrophication
Thompson Lake ⁽¹⁾	19-0048	TP	Nutrient/Eutrophication
Rogers Lake ⁽²⁾	19-0080	TP ⁽²⁾	Not impaired

(1) The lake is on the draft 2014 303(d) list of impaired waters.

(2) Addressed by a protection strategy

Table 2: Lake Morphometry

Waterbody	Surface area (acres)	Average depth (feet)	Max. depth (feet)	Littoral area (%)	Depth class	Drainage area (acres)
Sunfish Lake	47	NA	32	NA	deep	235
Lake Augusta	44	18	33	37	deep	420
Thompson Lake	7	5-6	8	NA	shallow	180

Land Use:

The land use in the three watersheds is urban, consisting of single family residential, park and streets. Section 2 and Appendix A of the TMDL contains the land use maps for each waterbody. MPCA does not anticipate changes in phosphorus loading due to changes in land use within the LMR Lakes watershed. Virtually all the land in the watershed addressed by this TMDL is in Municipal Separate Storm Sewer System (MS4) areas, and therefore any changes in land use will be subject to the wasteload allocations (WLAs) calculated for each MS4 (Section 4 of the TMDL). There are approximately 17 acres of land surrounding Thompson Lake that are not covered under an MS4 permit.

Problem Identification:

MPCA and LMRWMO have been monitoring lakes in the watershed for several years. As noted above, Sunfish Lake and Lake Augusta were listed as impaired in 2010. These listings were for nutrient/eutrophication. In addition, Thompson Lake has been newly identified as impaired, and included on the draft 2014 303(d) list.

MPCA reviewed available data from 2003-2012 for use in the TMDL for the lakes (Table 2.2 of the TMDL). Table 2.2 of the TMDL summarizes the data for each lake, and the in-lake "average" condition from June to September. All the lakes showed exceedances of the TP and the chl-a criteria, and Lake Augusta exceeded the Secchi depth criteria. Figures 2.1-2.5 of the final TMDL document summarize the individual lake water quality values.

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 LMR 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 LMR Lakes watershed, and to the development of a TMDL.

Pollutant of Concern:

The pollutant of concern is phosphorus (3 lakes).

Source Identification (point and nonpoint sources):

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

NPDES permitted facilities: There are no individual NPDES facilities within the LMR Lakes watershed which discharge phosphorus.

MS4 communities: There are six MS4 communities within the LMR Lakes watershed (Table 3 of this Decision Document; Table 2.3 of the TMDL). Stormwater from MS4s can transport phosphorus to surface water bodies during or shortly after storm events. Each of the MS4 communities within Table 3 of this Decision Document was assigned a portion of the WLA.

Table 3: Regulated MS4 Permittees in the LMR Lakes watershed nutrient TMDL

Regulated MS4 Permittees	NPDES Permit ID
Sunfish Lake	
Sunfish Lake City MS4	MS400059
Thompson Lake	
West St. Paul City MS4	MS400059
MN/DOT Metro District MS4	MS400170
Dakota County MS4	MS400132
Lake Augusta	
Mendota Heights City MS4	MS400034
Mendota City MS4	MS400033

Permitted Construction and Industrial Areas: Construction and industrial sites may contribute phosphorus via sediment runoff during stormwater events. These areas within the LMR 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. Under the MPCA’s Stormwater General Permit (MNR100001) and applicable local construction stormwater ordinances, managers of sites under construction or industrial stormwater permits must review the adequacy of local SWPPPs to ensure that each plan complies with the applicable requirements in the State permits and local ordinances.

CSOs: There are no CSO communities in the LMR Lakes watershed.

CAFOs: There are no CAFOs within the LMR Lakes watershed.

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

Non-regulated stormwater runoff: Non-regulated stormwater runoff can add phosphorus to the watershed. The sources of phosphorus in stormwater include: decaying vegetation (leaves, grass

clippings, etc.), domestic and wild animal wastes, soil particles, and phosphorus-containing fertilizers.

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

Wildlife: Wildlife is a known source of nutrients 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 nutrients. Wildlife contributes to the potential impact of contaminated runoff from animal habitats, such as park areas, forest, and rural areas.

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 three 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:

Almost the entire areal extent of the LMR Lakes watershed is covered under MS4 permits. 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 LMR 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 LMR Lakes are designated as Class 2B water 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 standards that must be achieved to attain the aquatic recreation designated use. The numeric eutrophication standards which are applicable to the lakes are those set forth for Class 2B shallow and deep lakes in the NCHF Ecoregion (Table 4 of this Decision Document). Sunfish Lake and Augusta Lake are defined as deep lakes and Thompson Lake is defined as a shallow lake. 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.

Table 4: MPCA Eutrophication Criteria for shallow and deep lakes in the NCHF Ecoregion

Parameter	Eutrophication Standard (shallow)	Eutrophication Standard (deep)
Total Phosphorus (µg/L)	TP ≤ 60	TP ≤ 40
Chlorophyll-a (µg/L)	chl-a ≤ 20	chl-a ≤ 14
Secchi Depth (m)	SD ≥ 1.0	SD ≥ 1.4

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.

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 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 LMR Lakes for nutrients was described in Section 2.4 and Appendix A of the final TMDL document.

Runoff modeling: The watershed for each of the three lakes is urbanized, and little natural drainage remains. The watersheds are drained by stormwater drainage systems consisting of a series of pipes, ponds, and other stormwater features. To model the watersheds, MPCA used the P8 Model (Program for Predicting Polluting Particle Passage thru Pits, Puddles, & Ponds). P8 is a model that allows the user to link precipitation run-off into stormwater systems and then to "route" water through various flow structures and BMPs, and to track changes in flows and pollutant loads. The model allows a user to predict 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 (Appendix A.1 of the TMDL).

After delineating the boundaries of the MS4 districts, MPCA determined the amount of impervious cover in the watershed of each of the lakes (Appendix A.1.2 of the TMDL). MPCA then analyzed the stormwater features (ponds, weir heights, etc.) and developed a routing "map" of stormwater in each watershed. MPCA then ran the model for various storm events to determine the current rate of removal for the various existing stormwater features. Based on this effort, the current loading of TP to the lakes was determined (Table A.9 of Appendix A of the TMDL). The current loads were then calculated for each MS4 based upon the area.

In-Lake modeling: Once the watershed loading calculations were developed for each lake, MPCA used a spreadsheet-based mass balance model to determine the lake loads based upon the TP loading. The spreadsheet model was first used to develop a water mass balance in the lakes to determine the impacts of groundwater inflow/outflow on the lakes.

Once the water balance was complete, the spreadsheet was used to calculate the phosphorus mass balance in each lake, based upon the results of the P8 model, the groundwater inflow/outflow, and internal loading. Further details on the modeling efforts are in Appendix A of the TMDL.

Lake Augusta: The TMDL for Lake Augusta is in Table 5 of this Decision Document. The MPCA's source modeling results indicated that there is significant internal load contributing phosphorus to the water column in Lake Augusta (approximately 87% of the TP load, Figure 2.8 of the final TMDL document). MPCA focused the source reduction efforts for Lake Augusta on attenuating the load from internal sources. This strategy was determined based on MPCA's source modeling results which demonstrated that a majority of the load which was negatively impacting water quality was originating from internal sources.

MPCA explained that in some of the subwatersheds of the LMR Lakes watershed there exist best management practices (BMPs) and natural waterbodies (i.e., other lakes and wetlands) which act to remove phosphorus from watershed runoff (page 23 of the final TMDL document). In these instances phosphorus is removed from runoff prior to that runoff reaching streams and lakes. MPCA accounted for these conditions within its P8 modeling efforts and subwatershed phosphorus contributions. MPCA calculated that the stormwater control devices in the watershed removed approximately 44% of the phosphorus load which would have contributed to Lake Augusta (Table 2.5 of the final TMDL document).

Table 5: TMDL Summary for Lake Augusta

		Existing TP Load lbs/yr	Allowable TP load		Estimated Load Reduction %
			lbs/yr	lbs/day	
Wasteload	Total WLA	41.25	41.25	0.1130	0
	Construction/Industrial SW	0.41	0.41	0.0011	0
	Mendota Heights City MS4	40.72	40.72	0.1116	0
	Mendota City MS4	0.12	0.12	0.0003	0
Load	Total LA	322.09	75.82	0.2077	76
	Atmospheric deposition	7.49	7.49	0.0205	0
	Internal load	314.60	68.33	0.1872	78
MOS			13.08	0.0356	
Total Load		363.34	130.08	0.3564	64

Sunfish Lake: The TMDL for Sunrise Lake is in Table 6 of this Decision Document. The MPCA’s source modeling results indicated that there is significant internal load contributing phosphorus to the water column in Sunfish Lake (approximately 90% of the TP load, Figure 2.7 of the final TMDL document). MPCA focused the source reduction efforts for Sunfish Lake on attenuating the load from internal sources. This strategy was determined based on MPCA’s source modeling results which demonstrated that a majority of the load which was negatively impacting water quality was originating from internal sources.

MPCA explained that in some of the subwatersheds of the LMR Lakes watershed there exist BMPs and natural waterbodies (i.e., other lakes and wetlands) which act to remove phosphorus from watershed runoff (page 23 of the final TMDL document). In these instances phosphorus is removed from runoff prior to that runoff reaching streams and lakes. MPCA accounted for these conditions within its P8 modeling efforts and subwatershed phosphorus contributions. MPCA calculated that the stormwater control devices in the watershed removed approximately 21% of the phosphorus load which would have contributed to Sunfish Lake (Table 2.5 of the final TMDL document).

Table 6: TMDL Summary for Sunfish Lake

		Existing TP Load lbs/yr	Allowable TP load		Estimated Load Reduction %
			lbs/yr	lbs/day	
Wasteload	Total WLA	10.00	10.00	0.0274	0
	Construction/Industrial SW	0.10	0.10	0.0003	0
	Sunfish MS4	9.90	9.90	0.0271	0
Load	Total LA	168.91	97.27	0.2662	42
	Atmospheric deposition	7.52	7.52	0.0206	0
	Internal load	161.39	89.75	0.2456	44
MOS			11.92	0.0327	
Total Load		178.91	119.19	0.3263	33

Thompson Lake: The TMDL for Thompson Lake is in Table 7 of this Decision Document. The model results indicated that there is not significant internal loading to Thompson Lake (Figure 2.11 of the final TMDL document). MPCA noted that because of the small size of the lake, lake

water quality fluctuates repeatedly during the year in response to smaller precipitation events (as compared to the other two deep lakes).

MPCA explained that in some of the subwatersheds of the LMR Lakes watershed there exist BMPs and natural waterbodies (i.e., other lakes and wetlands) which act to remove phosphorus from watershed runoff (page 23 of the final TMDL document). In these instances phosphorus is removed from runoff prior to that runoff reaching streams and lakes. Thompson Lake did not have quantifiable TP reductions from BMPs or natural attenuation in its direct subwatershed. Also, MPCA determined via its modeling efforts that internal load was '0' and that a majority of the TP loading to Thompson Lake was due to watershed sources (i.e., MS4 contributions).

Table 7: TMDL Summary for Thompson Lake

		Existing TP Load lbs/yr	Allowable TP load		Estimated Load Reduction %
			lbs/yr	lbs/day	
Wasteload	Total WLA	100.60	70.24	0.328	30
	Construction/Industrial SW	NA	0.79	0.004	0
	MN/DOT Metro MS4	5.07	3.35	0.016	34
	Dakota County MS4	3.58	2.50	0.010	30
	West St. Paul City MS4	91.95	63.60	0.298	31
Load	Total LA	1.56	1.56	0.007	0
	Load Allocation	0.94	0.94	0.004	0
	Atmospheric deposition	0.62	0.62	0.003	0
	Internal load	0	0	0	0
MOS			7.97	0.372	
Total Load		102.16	79.77	0.372	22

MPCA subdivided the loading capacity among the WLA, LA and MOS components of the TMDL (Tables 5-7 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 their calculation of wasteload allocations, load allocations and the margin of safety for the LMR Lakes TMDLs. 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.

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 only a few sources, specifically atmospheric deposition, internal loads (for Sunfish Lake and Lake Augusta) and non-regulated stormwater contribution for Thompson Lake. MPCA subdivided portions of the LA and assigned those values to nonpoint sources dependent on the TMDL subwatershed (Tables 5-7 of this Decision Document).

MPCA determined the internal loading for the lakes based upon TP mass balance models results, and compared the results to in-lake water quality. For Sunfish Lake and Lake Augusta, the model was adjusted to include internal loading. For Thompson Lake, model results indicated there is not significant internal loading in the lake. MPCA also analyzed watershed data to determine if groundwater was a source of TP in each lake. The lakes were determined to be seepage lakes, and thus TP loads from groundwater were not found to be significant.

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 WQs 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 six regulated MS4 permittees within the LMR Lakes nutrient TMDLs, and set aside a percentage of each TMDL's loading capacity for construction and industrial stormwater. Table 3 of this Decision Document lists all the MS4 permittees that were assigned WLAs in the nutrient TMDLs. Tables 5-7 of this Decision Document provide the WLAs for each MS4 permittee in each of the three lakes addressed by this TMDL.

WLA were assigned based on the necessary TP load reductions for achieving the TP water quality target. To determine the MS4 WLAs, MPCA first determined the land area for each watershed that was under an MS4 permit. MPCA also considered the amount of impervious cover present in each MS4 jurisdiction, and the removal efficiencies of existing stormwater practices. Where the water quality spreadsheet model indicated additional reductions were needed, MPCA reduced the stormwater allocations until the water quality criteria were met.

MPCA set aside 1% of the total WLA to account for TP loading from construction and industrial stormwater. This WLA accounts for any construction stormwater or industrial stormwater generated within the TMDL watersheds (Section 2.4 of the final TMDL document).

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.

There are no CSOs or CAFOs within the LMR Lakes watershed, therefore, CSOs and CAFOs were not given an allocation (WLA = 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 LMR Lakes nutrient TMDLs incorporated an explicit MOS of 10% of the total loading capacity (Tables 5-7 of this Decision Document). MPCA noted that the 10% is reasonable due to the results of the generally good calibration of the P8 model for both hydrology and pollutant loading (Section A.4 of Appendix A 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 LMR Lakes typically occur during 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 LMR 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 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 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 LMR Lakes TMDLs discuss reasonable assurance activities in Section 3 and Appendix A of the final TMDL document. The main entities responsible for overseeing the pollutant reduction activities will be the MPCA and the LMRWMO.

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 assigns a wasteload allocation to an MS4 permittee, that permittee must document the WLA in their 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 LMR Lakes watershed TMDLs. In the event that the SWPPP does not meet the WLA, the SWPPP will need to be modified pursuant to the effective date of the next General Permit. This applies to the MS4, Construction, and Industrial Stormwater General Permits.

The LMRWMO and 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 LMRWMO 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.

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 develop TMDL implementation plans. TMDL implementation plans are expected to be developed within a year of TMDL approval and are required in order for local entities to apply for funding from the State. 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. The implementation plans are required to contain ranges of cost estimates for point and nonpoint source load reductions, as well as monitoring efforts to determine effectiveness. MPCA has developed guidance on what is required in the implementation plans (Implementation Plan Review Combined Checklist and Comment, MPCA), which includes cost estimates, general timelines for implementation, and interim milestones and measures. 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 '11 Clean Water Fund Competitive Grants Policy; Minnesota Board of Soil and Water Resources, 2011).

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 LMR Lakes watershed (Section 4 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 LMR 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, routine monitoring of the lakes will continue to be a part of the LMRWMO annual monitoring program. The Citizen Assisted Monitoring Program (CAMP) has been used to monitor the lakes in the past, and the LMRWMO will continue to support the CAMP efforts in the future.

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 3 of the TMDL. The MPCA presented a variety of possible implementation activities for each lake which could be undertaken within the LMR Lakes watershed.

Reduction of Internal Load: For Sunfish Lake and Lake Augusta, the internal load is the dominant source of TP. Depending on funding, alum treatment will be pursued to reduce the internal load of TP in the lakes. By controlling the internal load of phosphorus, the response time of the lakes to watershed improvements will increase, thereby attaining the designated uses.

Urban/Residential nutrient reduction strategies: MPCA noted that Thompson Lake needs additional load reduction from stormwater sources. MPCA explored the effect an additional stormwater pond would have on TP loading to the lake. The study noted that an additional pond is possible, but that previously contaminated soils in the vicinity may preclude the installation of the pond. MPCA and the LMRWMO will explore options to the pond, including any potential stormwater upgrades of existing systems to attain the TP reductions needed.

MPCA and the LMRWMO also modeled the runoff loads from the watersheds of all the lakes to determine which areas had the highest per-acre TP loading. Based upon these results, MPCA and the LMRWMO will target those areas for improvements in BMPs to reduce TP loads into the lakes (Figures 3.1-3.3 of the final TMDL document).

Rogers Lake: MPCA and the LMRWMO developed these strategies for the three impaired lakes (Lake Augusta, Sunfish Lake, and Thompson Lake). While Rogers Lake is not impaired, BMPs that will protect the lake water quality were identified, and the same modeling effort for the three impaired lakes was also developed for Rogers Lake. Identification of the TP loads to the lake,

allocations to protect the current water quality, and the identification of higher per-acre TP loads were all calculated for Rogers Lake. The stormwater requirements applicable to the impaired lakes will also apply to Rogers Lake (Section 2.5 of the final TMDL document). MPCA believes, and EPA concurs, that the protection strategy set forth by MPCA and LMRWMO is sufficient to maintain the non-impaired status of the lake.

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 3.2 of the TMDL document. Throughout the development of the LMR Lakes watershed TMDL the public was given various opportunities to participate in the TMDL process. The MPCA and LMRWMO held meetings with representatives from the regulated communities in 2012-2014. The goal of these meetings was to update these groups on the TMDL approach, to share LMR Lakes watershed water quality monitoring data, to solicit the representatives for input on potential allocation and implementation strategies, and to solicit information related to implementation activities already underway within the watershed. Regulated MS4 communities and the LMRWMO will ultimately be responsible for the implementation efforts within the LMR Lakes watershed.

The LMRWMO developed and mailed a citizen input survey to residents of Pickerel Lake, Rogers Lake, Thompson Lake, and Sunfish Lake watersheds. The survey was sent to 2400 residential properties in the watersheds, along with informational flyers. LMRWMO will use the results of the survey to focus efforts on actions the residents are most interested in, as well as to expand the communication plan. A series of public informational meetings were held in the LMR Lakes watershed, to provide information to the public.

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 June 16, 2014, and ended on July 16, 2014. The MPCA received three public comments and adequately addressed these comments. Comments were submitted by the Minnesota Department of Transportation – Metro District, the Minnesota Center for Environmental Advocacy (MCEA), and a local citizen.

The comment from the local citizen suggested additional implementation activities that could be utilized in the watershed. The MPCA agreed to include these suggestions in the communication plan for the TMDL. EPA believes that MPCA adequately addressed the comment and updated the final TMDL with appropriate language.

The Minnesota Department of Transportation – Metro District (MNDOT) comments focused on the impairment status, historical land use, historical water quality of Pickerel Lake, and that Thompson Lake should be classified as a wetland, not a lake. MPCA noted that Pickerel Lake is not considered impaired at this time, due to the direct impacts of the Mississippi River. No TP loads were developed for Pickerel Lake, and MPCA will pursue other options for the lake. MNDOT also noted that Thompson Lake is classified as a wetland by the Minnesota Department of Natural Resources (MDNR), and suggests that the MPCA and MDNR should be working to resolve this issue before proceeding with the TMDL. MPCA responded that while MDNR does classify waters, that classification pertains to MDNR's shoreline regulatory process. MPCA noted that MN rules 7050 and 7053 provide the authority for MPCA to determine the definitions of waterbodies for water quality assessment authority. EPA agrees with this response.

MCEA raised several issues in comments on the LMR Lakes TMDL. MCEA questions why MPCA relied upon reductions on internal loading for Augusta Lake and Sunfish Lake, and not on reducing loadings from the watershed. MPCA noted that there have been reductions in the recent past in the watershed TP loadings, and it is therefore reasonable to expect the current watershed load to be appropriate for the lakes once the internal load has been addressed. MCEA also raised concerns over how the model accounted for the critical time period, and that MPCA relied too heavily on an annual average mass load. MPCA noted that the model was actually run on a daily time-step, which tracks the daily load of TP in the lakes. This accounts for the variations in TP loading (higher in the spring) and the water quality impacts (greater in the summer) to ensure the critical conditions are met. Finally, MCEA noted that the monitoring plan was rather limited, as is the implementation plan. MPCA agreed that both plans need to be further defined. MPCA will be working closely with the LMRWMO to revise the plans in the near future as the Watershed Restoration Action Plan (WRAP) continues. EPA believes that MPCA adequately addressed the comments from MCEA.

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 LMR Lakes TMDL document, submittal letter and accompanying documentation from the MPCA on October 3, 2014. The transmittal letter explicitly stated that the final LMR 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. The letter also contained the name of the waterbodies as it appears on Minnesota's 303(d) list, and the causes/pollutants of concern.

EPA also agrees that the protection measures outlined in the TMDL document for Rogers Lake are sufficient to maintain the existing water quality in the lake. EPA agrees these measures are appropriate for consideration as a "protection strategy" as described in the "A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program".

The EPA finds that the TMDL transmittal letter submitted for the LMR 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 Lower Mississippi River Lakes watershed for phosphorus satisfy all of the elements of approvable TMDLs. This approval is for **3 TMDLs (Lake Augusta, Sunfish Lake and Thompson Lake)**, addressing 3 lakes for aquatic recreational use impairments due to phosphorus. EPA also recognizes that MPCA has addressed 1 lake (Rogers Lake) under a protection strategy (Table 1 of this Decision Document).

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.

From: [Werbach, David](#)
To: [Olmanson, Rachel \(MPCA\)](#)
Subject: Lower Mississippi River WMO TMDL
Date: Wednesday, December 13, 2017 1:01:35 PM

Rachel:

This email is to acknowledge the correct existing load for TP for MnDOT in the Lower Mississippi River TMDL. This TMDL was approved on 11/24/2014. The TMDL and the associated Decision Document reference the existing TP load for Thompson Lake for MNDOT as 5.07 lbs/yr. We understand the correct value is 4.98 lbs/yr. Since the EPA approves allocations and not current loading, this change does not affect our approval. I will include this email in our file for the TMDL to note the change.

Please feel free to contact me if you have any questions.

Dave Werbach
USEPA R5 TMDL Coordinator