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

REPLY TO THE ATTENTION OF:
WW-16J

April 18, 2022

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

RE: Approval of the Minnesota River Headwaters Watershed TMDLs

Dear Mr. Skuta:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) in the Minnesota River Headwaters Watershed TMDL report. The TMDLs are calculated for *E. coli* and Total Phosphorus, and address impairments to Aquatic Recreation designated use.

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 16 TMDLs for the Minnesota River Headwaters. The statutory and regulatory requirements, and EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Minnesota's effort in submitting these TMDLs and look forward to future submissions by the State of Minnesota. If you have any questions, please contact James Ruppel of the Watersheds and Wetlands Branch at ruppel.james@epa.gov or 312-886-1823.

Sincerely,

Digitally signed by TERA FONG
Date: 2022.04.18 16:54:10 -05'00'

Tera L. Fong
Division Director, Water Division

Enclosure

cc: Katherine Pekarek-Scott, MPCA

wq-iw7-57g

U.S. Environmental Protection Agency (EPA)
Final Review and Decision of the
April 2022 - Minnesota River Headwaters
Watershed Total Maximum Daily Load

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.

This document is a final review and decision of the Minnesota (MN) TMDL document titled:

Minnesota River Headwaters Watershed Total Maximum Daily Load
March 2022

Section 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 of this decision document).

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 National Pollutant Discharge Elimination System (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.

Section 1 Review Comments:

The waterbody(s) are identified as they appear on the 303(d) list.

A comparison of Tables 1 and 2 of the final TMDL document to the MN 2020 Inventory of Impaired Waters (https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list) shows the waterbodies are identified as they appear on the 303(d) list. The waterbodies addressed by this TMDL effort are identified in Table 1 of this Decision Document. This TMDL document does not apply to portions of any waters within the jurisdictions of North or South Dakota.

The TMDL clearly identifies the pollutant for which the TMDL is being established.

E. coli is identified by Minnesota as the pollutant for the TMDLs developed for the impaired stream segments in Table 1 of the final TMDL document and in Table 1 of this Decision Document.

Nutrient/eutrophication biological indicators are identified as the impairment/parameter for the nutrient impaired lakes in Table 2 of the TMDL and in Table 1 of this Decision Document. Total Phosphorus (TP) is the pollutant for which the TMDL is developed by Minnesota to address the nutrient related impairments.

The link between the pollutant of concern and the water quality impairment is specified.

Exceedances of Water Quality Standards (WQS) for *E. coli* and TP, as well as the TP response variables of Chlorophyll *a* and Secchi Disk Depth are specified as the causes of the Aquatic Recreation use impairments (Sections 2 and 3.5 of the final TMDL document).

Waters within Indian Country, (as defined in 18 U.S.C. Section 1151) are identified and discussed.

No loads from tribal lands are identified by the State in the TMDL, nor are any allocations specified for tribal lands (Section 3 of the final TMDL document). The final TMDL document specifies that no part of the watershed within the boundaries of the State of MN is located on tribal lands. No other involvement by Native American tribes is mentioned by the final TMDL document.

The location and quantity of point and non-point sources are identified.

E. coli Point Source Assessment

Potential sources of *E. coli* identified and discussed in the TMDL include NPDES permitted domestic and industrial wastewater, NPDES-permitted stormwater, and NPDES-permitted animal feeding operations. A brief qualitative discussion of these sources is provided in Section 3.6.1 of the final TMDL document and additional numerical analysis of these sources along with a discussion of the fate and delivery of *E. coli* once it has been discharged into the system is provided in Appendices C and D of the final TMDL document.

Wastewater Treatment Plants (WWTPs)

The Minnesota Pollution Control Agency (MPCA) identified three WWTPs that discharge to impaired reaches of the TMDL watershed. Table 2 of Attachment 2 of this Decision Document). MPCA explained that the WWTPs are pond systems, and discharge under specific conditions as part of their NPDES permit (Section 3.6.1.1 and Table 20 of the final TMDL document).

Municipal Separate Storm Sewer Systems (MS4s)

The final TMDL document states that there are no MS4s within the drainage areas of the stream reaches impaired by *E. coli (*Section 3.6.1.1 of the final TMDL document).

Concentrated Animal Feedlot Operations (CAFOs)

MPCA recognized the presence of CAFOs in the TMDL watershed (Section 3.6.1.1, Figure 10, and Appendix E of the final TMDL document). CAFO facilities must be designed to contain all surface water runoff (i.e., have zero discharge from their facilities) and have a current manure management plan. MPCA explained that these facilities do not discharge effluent and therefore were not assigned a portion of the Waste Load Allocation (WLA) (WLA = 0).

Construction and Industrial Stormwater Sources

Section 4.3.3 of the final TMDL document discusses why construction and industrial wastewater are not considered by Minnesota to be a source of *E. coli* loads to the impaired stream segments.

E. coli Nonpoint sources

Subsurface Sewage Treatment Systems (SSTSs)

In Minnesota, SSTSs are not allowed to discharge pollutants to surface waters and are therefore not considered to be a source of *E. coli* when they are in proper working order and in compliance with regulations. Section 3.6.1.2 of the final TMDL document provides a discussion of SSTS systems that are not currently in compliance in the watersheds draining to the impaired stream reaches and lakes. An analysis of failing SSTSs is presented in Figure 11 of the final TMDL document and shows the estimated number of SSTSs in the relevant counties along with estimates of how many of those SSTS may be failing. Failing SSTS are included in the NPS load estimates.

Failing SSTS are specifically defined as systems that are failing to protect groundwater from contamination, while those systems which discharge partially treated sewage to the ground surface, road ditches, tile lines, and directly into streams, rivers and lakes are considered an imminent threat to public health and safety (ITPHS). ITPHS systems also include illicit discharges from unsewered communities.

Non-regulated urban runoff

Runoff from urban areas (i.e., urban, residential, commercial or industrial land uses) can contribute bacteria to local water bodies. Stormwater from urban areas, which drain impervious surfaces, may introduce bacteria (e.g., derived from wildlife or pet droppings) to surface waters.

Stormwater from agricultural land use practices and feedlots near surface waters

Animal Feeding Operations (AFOs) in close proximity to surface waters can be a source of bacteria to water bodies in the watershed. These areas may contribute bacteria via the mobilization and transportation of pollutant laden waters from feeding, holding and manure storage sites. Runoff from agricultural lands may contain significant amounts of bacteria which may lead to impairments in the TMDL watershed. Feedlots generate manure which may be spread onto fields. Runoff from fields with spread manure can be exacerbated by tile drainage lines, which channelize the stormwater flows and reduce the time available for bacteria to die-off.

Unrestricted livestock access to streams

Livestock with access to stream environments may add bacteria directly to the surface waters or resuspend particles that had settled on the stream bottom. Direct deposition of animal wastes can result in very high localized bacteria counts and may contribute to downstream impairments. Smaller animal facilities may add bacteria to surface waters via wastewater from these facilities or stormwater runoff from near-stream pastures.

Wildlife

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

TP Point Source Assessment

The sources of TP considered by Minnesota in the TMDL source analysis include, NPDES domestic and industrial discharges, construction and industrial stormwater, municipal separate storm sewer systems, permitted feedlot facilities, upland erosion, stream bank erosion, non-NPDES permitted feedlots, application of manure to fields, internal loading from lake bottom sediments, SSTSs, and atmospheric deposition.

NPDES Permitted Domestic and Industrial Wastewater Sources

Section 3.6.2.1 of the final TMDL document presents a discussion of the number of NPDES permits both within the Minnesota River Headwaters (MRH) watershed, as well as within the watershed of tributaries to Lac qui Parle Lake. Section 4.4.3 of the final TMDL document presents additional details regarding how the WLAs were calculated by Minnesota for the permitted dischargers in the TMDL watershed. Tables 39 and 41 of the final TMDL document and Attachment 2 of this Decision Document provide NPDES permit numbers and TP WLAs respectively.

Municipal Separate Storm Sewer Systems (MS4s)

One MS4 (the city of Morris Permit #MS400274) is identified by Minnesota as contributing a TP load to an impaired lake (Lac qui Parle Lake).

Concentrated Animal Feedlot Operations (CAFOs)

MPCA recognized the presence of CAFOs in the TMDL watershed (Section 3.6.1.1, Figure 10, and Appendix E of the final TMDL document). CAFO facilities must be designed to contain all surface water runoff (i.e., have zero discharge from their facilities) and have a current manure management plan. MPCA explained that these facilities do not discharge effluent and therefore were not assigned a portion of the WLA (WLA = 0).

TP Non-Point Source Assessment

The Hydrological Simulation Program - FORTRAN (HSPF) model was used by Minnesota to estimate the quantities of TP coming from nonpoint sources. The model is discussed in detail in Appendix D of the final TMDL document, and Section 3.6.2.3 of the final TMDL document presents a detailed breakdown of the modeling results for the various TP sources for each of the impaired lakes.

Internal loading

The release of phosphorus from lake sediments, via physical disturbance from benthic fish (i.e., rough fish (e.g., carp)), from wind mixing the water column, and from decaying algae and plant matter, may all contribute internal phosphorus loading to the lakes of the MRH watershed. 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.

Stormwater runoff from agricultural land use practices

Runoff from agricultural lands may contain significant amounts of nutrients, organic material and organic-rich sediment which may lead to impairments in the MHR watershed. Manure spread onto fields is often a source of phosphorus, and can be exacerbated by tile drainage lines, which channelize the stormwater. Tile lined fields and channelized ditches enable particles to move more efficiently into surface waters. Phosphorus, organic material, and organic-rich sediment may be added via surface runoff from upland areas which are being used for Conservation Reserve Program (CRP) lands, grasslands, and agricultural lands used for growing hay or other crops. Stormwater runoff may contribute nutrients and organic-rich sediment to surface waters from livestock manure, fertilizers, vegetation and erodible soils.

Unrestricted livestock access to streams

Livestock with access to stream environments may add nutrients directly to the surface waters or resuspend particles that had settled on the stream bottom. Direct deposition of animal wastes can result in very high localized nutrient concentrations and may contribute to downstream impairments. Smaller animal facilities may add nutrients to surface waters via wastewater from these facilities or stormwater runoff from near-stream pastures.

Stream channelization and stream erosion

Eroding streambanks and channelization efforts may add nutrients, organic material, and organic-rich sediment to local surface waters. Nutrients may be added if there is particulate phosphorus bound with eroding soils. Eroding riparian areas may be linked to soil inputs within the water column and potentially to changes in flow patterns. Changes in flow patterns may also encourage downcutting of the streambed and streambanks. Stream channelization efforts can increase the velocity of flow (via the removal of the sinuosity of a natural channel) and disturb the natural sedimentation processes of the streambed.

Urban/residential sources

Nutrients, organic material, and organic-rich sediment may be added via runoff from urban/developed areas near the impaired lakes in the MRH watershed. Runoff from urban/developed areas can include phosphorus derived from fertilizers, leaf and grass litter, pet Wastes, and other sources of anthropogenic derived nutrients.

Atmospheric deposition

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

Discharges from SSTS or unsewered communities

Failing septic systems are a potential source of nutrients within the MRH watershed. Septic systems generally do not discharge directly into a water body, but effluents from SSTS may leach into groundwater or pond at the surface where they can be washed into surface waters via stormwater runoff events. Age, construction and use of SSTS can vary throughout a watershed and influence the nutrient contribution from these systems.

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 via contaminated runoff from animal habitats, such as urban park areas, forest, and rural areas.

Reserve capacity

Minnesota did not calculate a reserve capacity for the bacteria TMDLs. Any expansion of point or nonpoint sources will need to comply with the respective WLA, and load allocation (LA) values calculated in the bacteria TMDLs.

Minnesota did calculate a reserve capacity for the Lac qui Parle Lake-NW Bay and Lac qui Parle-SE Bay phosphorus TMDLs (Section 4.4.5 of the final TMDL document). Minnesota noted that this will allow for the expansion of wastewater treatment facilities to address the growth of WWTPs as unsewered areas are included (Table 42 of the final TMDL document and Attachment 1 of this Decision Document).

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

Section 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.

Section 2 Review Comments:

Applicable WQS are identified, described, and a numerical water quality target is included.

Applicable water quality standards are discussed in Section 2 of the final TMDL document.

The waters addressed by the TMDL are classified by Minnesota as Class 2B waters. A description of Class 2B waters is presented on page 5 of the final TMDL document.

The Minnesota numerical water quality standards for *E. coli* are provided in Table 3 of the final TMDL document, and numerical water quality standards are provided for TP and the response variables of Chlorophyll-A and Secchi Disk depth visibility are provided in Table 4 of the final TMDL document.

In Minnesota, *E. coli* WQS are applicable from April 1st through October 31st and specify an acute WQS of not more than 1,260 organisms/100 ml when expressed as the upper 10th percentile of the data, and not more than 126 organisms/100ml when expressed as a monthly geometric mean. The focus of this TMDL is on the 126 organisms (orgs) per 100 mL (126 orgs/100 mL) portion of the standard. MPCA believes that using the 126 orgs/100 mL portion of the standard for TMDL calculations will result in the greatest bacteria reductions within the MRH watershed and will result in the attainment of the 1,260 orgs/100 mL portion of the standard. While the bacteria TMDLs will focus on the geometric mean portion of the water quality standard, attainment of both parts of the water quality standard is required.

In Minnesota, phosphorus criteria for lakes are based upon the ecoregion and type of lake. The impaired lakes in this TMDL effort are in the Northern Glaciated Plains ecoregion and classified by Minnesota as shallow lakes (defined as less than 15 feet deep). For these lakes, the criteria are TP concentrations less than 90 µg/L, Chlorophyll *a* concentrations less than 30 µg/L, and Secchi Disk Depth greater than 0.7 m.

MPCA selected phosphorus as the appropriate target parameter to address eutrophication problems because of the interrelationships between phosphorus and Chlorophyll *a*, and phosphorus and Secchi Depth (SD). Algal abundance is measured by Chlorophyll *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 depth. These criteria apply from June 1-September 30.

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, phosphorus, and the response variables, Chlorophyll *a* and SD depth. MPCA anticipates that by meeting the phosphorus concentration the response variables Chlorophyll *a* and SD will be attained and the MHW watershed phosphorus TMDLs will achieve the designated beneficial uses. For a lake to achieve its' designated beneficial use, 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 final TMDL document submitted by the MPCA satisfies the requirements of the second criterion.

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

Federal 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 additionally expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for steam flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Section 3 Review Comments:

The loading capacity is presented for the pollutant of concern (including daily loads).

E. coli Loading Capacities

The loading capacities for the *E. coli* impaired stream reaches are presented in the form of load duration curves (Figures 17 through 27 of the final TMDL document) and corresponding TMDL allocation summary tables broken down by flow conditions (Tables 21-33 of the final TMDL document and Attachment 1 of this Decision Document). The TMDL summary tables for the *E. coli* TMDLs are included in Attachment 1 of this TMDL Decision Document.

TP Loading Capacities

TP load capacities are presented in units of lbs/day for each of the impaired lakes in Tables 43-50 of the final TMDL document. The TMDL summary tables for the TP TMDLs are included in Attachment 1 of this TMDL Decision Document.

The method to establish a cause and effect relationship between the pollutant of concern and the numerical target is described, and the TMDL analysis is documented and supported

E. coli Methodology

Section 4.3.1 of the final TMDL document discusses how the loading capacity of the impaired streams is determined utilizing the load duration curve (LDC) approach.

The load duration curves were calculated by multiplying individual flow values by the WQS (126 orgs/100 mL) and then multiplying that value by a conversion factor. The resulting points are plotted onto a load duration curve graph. LDC graphs, for the bacteria TMDLs, have flow duration interval (percentage of time flow exceeded) on the X-axis and *E. coli* loads (number of bacteria per unit time) on the Y-axis. The LDCs used *E. coli* measurements in billions of bacteria per day. The curved line on a LDC graph represents the TMDL of the respective flow conditions observed at that location.

MPCA used the geometric mean (126 orgs/100 mL) of the *E. coli* water quality standard to calculate loading capacity values for the bacteria TMDLs. MPCA believes the geometric mean of the WQS provides the best overall characterization of the status of the watershed. EPA agrees with this assertion, as stated in the preamble of, "The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule" (69 FR 67218-67243, November 16, 2004) on page 67224, "…the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based." MPCA stated that the bacteria TMDLs will focus on the geometric mean portion of the water quality standard (126 orgs/100 mL) and that it expects that by attaining the 126 orgs/100 mL portion of the *E. coli* WQS the 1,260 orgs/100 mL portion of the *E. coli* WQS will also be attained. EPA finds these assumptions to be reasonable.

The tables in Attachment 1 of this Decision Document reports five points (the midpoints of the designated flow regime) on the loading capacity curve. However, it should be understood that the components of the TMDL equation could be illustrated for any point on the entire loading capacity curve. The LDC method can be used to display collected bacteria monitoring data and allows for the estimation of load reductions necessary for attainment of the bacteria water quality standard. Using this method, daily loads were developed based upon the flow in the water body. Loading capacities were determined for the segment for multiple flow regimes. This allows the TMDL to be represented by an allowable daily load across all flow conditions. Attachment 1 of this Decision Document identifies the loading capacity for the water bodies at each flow regime. Although there are numeric loads for each flow regime, the LDC is what is being approved for this TMDL.

TP LC Methodology

The phosphorus TMDLs developed for the impaired lakes were calculated using the U.S. Army Corps of Engineers (USACE) BATHTUB Model (Section 4.4 and Appendix B of the final TMDL document; Attachment 1 of this Decision Document). The BATHTUB model was used to calculate loading capacities for the lakes and to link observed phosphorus water quality conditions and estimate phosphorus loads to determine in-lake water quality. MPCA has previously employed BATHTUB successfully in many lake studies in Minnesota. BATHTUB is a steady-state annual or seasonal model that predicts a lake's growing season (June 1 to September 30) average surface water quality. BATHTUB utilizes annual or seasonal timescales which are appropriate because watershed phosphorus loads are normally impacted by seasonal conditions.

MPCA noted that the LC capacities for each lake are based upon the Minnesota portion of the watershed only (Section 4.4.1 of the final TMDL document). No loading or reductions were calculated for North or South Dakota.

The TP TMDL summary tables presenting the loading capacity, load and wasteload allocations, and the margin of safety for each impaired lake are included in Attachment 1 of this TMDL Decision Document.

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

Section 4. Load Allocations (LAs)

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

Section 4 Review Comments

The load allocations for existing NPS are accounted for (and future if applicable).

E. coli Load Allocations

Load allocations for *E. coli* were determined by Minnesota by first subtracting the wasteload allocations and margin of safety from the loading capacity (Section 4.3.2. of the final TMDL document). A single load allocation was calculated for all non NPDES permitted sources. The TMDL summary tables found in Section 4.3.6 of the final TMDL document (Attachment 1 of this Decision Document) show the *E. coli* load allocations, in terms of billions of organisms per day, for each of the five flow conditions (Very High, High, Mid-range, Low, and Very Low) for each of the 11 impaired stream reaches.

TP Load Allocations

Load allocations for TP were determined by Minnesota by first subtracting the wasteload allocations and margin of safety from the loading capacity (Section 4.4.2. of the final TMDL document). A single load allocation was calculated for all non NPDES permitted sources to represent watershed runoff, internal lake sediment loading, groundwater inputs, atmospheric deposition, and natural background conditions. The TMDL summary tables found in Section 4.4.7 of the final TMDL document (Attachment 1 of this Decision Document) contain the TP load allocations in terms of lbs per day for the five impaired lakes.

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

Section 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.

Section 5 Review Comments

The waste load allocations are properly assigned

E. coli Waste Load Allocations

Waste load allocations for each of the three facilities affected by the TMDL were calculated by Minnesota as the product of the maximum allowable discharge and the permitted *E. coli* concentration (126 org/100 mL)(Section 4.3.3 of the final TMDL document). Table 20 of the final TMDL document provides NPDES permit numbers and *E. coli* WLAs in terms of billions of organisms per day for each of the WWTP receiving allocations as part of this TMDL study. Minnesota noted that for some waterbodies, the maximum flow from the WWTPs exceeds the in-stream flow of the receiving water Section 4.3.3 of the final TMDL document). In these circumstances, the WLAs are calculated by applying the WQS at point of discharge. The concentration specified by the WQS (126 org. per 100mL) is multiplied by the discharge of the WWTP.

"Allocation = Point Source Discharge X Water Quality Standard Concentration"[1]

Minnesota stated that there were no MS4s in the watershed requiring an *E. coli* WLA. Neither construction site nor industrial site stormwater sources were allocated *E. coli* waste load allocations by Minnesota as the State determined that *E. coli* is not expected to be discharged from these sources.

MPCA acknowledged the presence of CAFOs in the watershed in Section 3.6.1.1 and Appendix E of the final TMDL document. CAFOs and other feedlots are generally not allowed to discharge to waters of the State (Minnesota Rule 7020.2003). CAFOs were assigned a WLA of zero (WLA = 0) by MPCA for the bacteria TMDLs. As explained by MPCA, CAFO production areas must be designed to contain all manure, and direct precipitation and manure-contaminated runoff from precipitation events up to the 25-year, 24-hour storm event, and even in the event of a discharge, the discharge cannot cause or contribute to a violation of a WQS. MPCA noted that any precipitation-caused runoff from the land application of manure at agronomic rates is not considered a point source discharge and is accounted for in the LA section of the TMDL.

[1] Section 4.3.3 of the TMDL document.

TP Waste Load Allocations

Sources allocated waste loads of TP include wastewater treatment plants, one MS4, and construction and industrial stormwater (Section 4.4.3 of the final TMDL document).

Table 39 of the final TMDL document includes NPDES permit numbers of the domestic and industrial WWTP that receive a WLA as part of the TMDL along with the ID numbers of the lakes they are associated with. Table 41 of the final TMDL document provides the TP WLAs for each facility in terms of pounds of TP per day as well as how the WLAs were calculated. Attachment 2 of this Decision Document contains the approved WLAs.

The single MS4 with area within the drainage area of an impaired lake is the City of Morris, which drains to Lac qui Parle Lake (Section 4.4.3 of the final TMDL document). The WLA was calculated by Minnesota based upon the watershed runoff concentration in BATHTUB times the areal extent of the MS4; 0.17% of the drainage area of Lac qui Parle Lake – NW Bay and 0.08% of the drainage are of Lac qui Parle Lake – SE Bay (Attachment 1 of this Decision Document).

Construction and industrial activity is considered by Minnesota to be minimal within the drainage areas of the impaired lakes. A combined WLA equal to 0.1% of the total loading capacity is allocated for industrial and construction stormwater loads for each of the TP impaired lakes. The NPDES general permit numbers are included in the text. This figure assumes that 0.1% of the drainage area is under construction and industrial activity at any given time.

General Stormwater Permits for Construction Activity (MNR1000001)[2]

ISW sites are regulated under general permits, in this case either the NPDES/SDS ISW Multi-Sector General Permit (MNR050000) or the NPDES/SDS General Permit for Construction Sand & Gravel, Rock Quarrying, and Hot Mix Asphalt Production facilities (MNG490000). [3]

The NPDES permit numbers as well as WLAs for each WWTP, construction and industrial stormwater, and the city of Morris MS4 are provided in terms of lbs of TP per day in the respective TMDL summary tables for each of the impaired lakes addressed in the TMDL (Tables 43-51) and summarized in Attachment 2 of this Decision Document.

MPCA acknowledged the presence of CAFOs in the watershed in Section 3.6.1.1 and Appendix E of the final TMDL document. CAFOs and other feedlots are generally not allowed to discharge to waters of the State (Minnesota Rule 7020.2003). CAFOs were assigned a WLA of zero (WLA = 0) by MPCA for the phosphorus TMDLs. As explained by MPCA, CAFO production areas must be designed to contain all manure, and direct precipitation and manure-contaminated runoff from precipitation events up to the 25-year, 24-hour storm event, and even in the event of a discharge, the discharge cannot cause or contribute to a violation of a WQS. MPCA noted that any precipitation-caused runoff from the land application of manure at agronomic rates is not considered a point source discharge, and is accounted for in the LA

[2] Minnesota River Headwaters Watershed Total Maximum Daily Load TMDL, Page 64
[3] Minnesota River Headwaters Watershed Total Maximum Daily Load TMDL, Page 64

section of the TMDL.

Section 5 of the final TMDL document discusses considerations for future growth. Section 5.1 of the final TMDL document discusses the need and procedure for accommodating the grown or establishment of MS4s with the watershed. Section 5.2 of the final TMDL document discusses how new or expanding WWTPs can be accommodated with additional WLAs for *E. coli* if necessary.

A summary of the NPDES WWTP WLAs is presented in Appendix 2 of this TMDL Decision Document.

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

Section 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.

Section 6 Review Comments:

A margin of safety (MOS) is provided and justified. If an implicit MOS is used, conservative assumptions are identified, and their relative impacts discussed.

E. coil MOS

An explicit MOS of 10% of the total *E. coli* loading capacity of each impaired stream reach is provided for by Minnesota for the TMDL (Section 4.3.4 of the final TMDL document; Attachment 1 of this Decision Document). This MOS is justified by the inherent accuracy of the load duration curve methodology, and the "very good" fit of the HSPF modeled flow data used to construct load duration curves.

Challenges associated with quantifying *E. coli* loads include the dynamics and complexity of bacteria in stream environments. Factors such as die-off and re-growth contribute to general uncertainty that makes quantifying stormwater bacteria loads particularly difficult. The MOS for the bacteria TMDLs also incorporated certain conservative assumptions in the calculation of the TMDLs. No rate of decay, or die-off rate of pathogen species, was used in the TMDL calculations or in the creation of load duration curves for *E. coli*. Bacteria have a limited capability of surviving outside their hosts, and normally a rate of decay would be incorporated. MPCA determined that it was more conservative to use the WQS (126 orgs/100 mL) and not to apply a rate of decay, which could result in a discharge limit greater than the WQS.

As stated in *EPA's Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination of these environmental variables was sufficient to meet the WQS of 126 orgs/100 ml. Thus, it is more conservative to apply the State's WQS as the bacteria target value because this standard must be met at all times under all environmental conditions.

TP MOS

An explicit MOS of 10% of the total TP loading capacity of each impaired lake is provided for by the TMDL (Attachment 1 of this Decision Document). The overall quality of the calibration statistics of the HSPF model, as well as the enhanced version of the BATHTUB model used are cited by Minnesota as justification for the selection of the 10% MOS.

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

Section 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)).

Section 7 Review Comments:

Seasonal variation in loads and/or effects are described and accounted for.

E. coli Seasonal Variation

Seasonal variation is accommodated by Minnesota by the use of load duration curves which automatically adjust for variations in flows, and by the seasonal application of the Minnesota WQS to coincide with the warm weather period when both aquatic recreation and *E. coli* inputs are at their seasonal maximums (Section 4.3.5 of the final TMDL document).

TP Seasonal Variation

Minnesota explained that seasonal variation is accommodated within the WQS by applying the standard during the June through September growing season when TP inputs and effects are at a maximum (Section 4.4.6 of the final TMDL document). Additionally, the water quality model was calibrated to data during the critical summer growing period.

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

Section 8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL. When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

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

Section 8 Review Comments:

Reasonable Assurance that point source load reductions will occur is provided in the document.

Reasonable assurance that point source loads will be met is provided by the NPDES permit system. Minnesota will review the existing NPDES permits to determine the impacts of the approved WLAs in this TMDL (Section 6.1 of the final TMDL document).

Reasonable Assurance that NPS load reductions will occur is provided in the document.

Reasonable assurance of the reduction of NPS loads is addressed in Section 6.2 of the final TMDL document, with additional details being provided in Section 8 of the final TMDL document. A detailed restoration strategy document is also drafted by Minnesota known as a Watershed Restoration and Protection Strategy. The Minnesota River Headwaters WRAPS was approved by the State on March 9, 2022, https://www.pca.state.mn.us/sites/default/files/wq-ws4-75a.pdf

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

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. In part to attain these goals, the CWLA requires MPCA to develop 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 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 (http://bwsr.state.mn.us/cwf_programs).

The parties responsible for implementation are identified:

The WRAPS document provides a brief description of the parties that will be involved in planning and implementing the Best Management Practices (BMPs) that will be necessary to achieve the needed NPS load reductions. Local Government Units, county Soil and Water Conservation Districts, watershed districts, and county governments are identified as being the lead agencies in selecting and siting the necessary BMPs, with state and federal agencies playing a supporting role.

As part of the WRAPS effort, Minnesota is working with several local groups. These included Big Stone County Soil and Water Conservation District (SWCD), Lac qui Parle SWCD, Swift

County SWCD, Upper Minnesota River Watershed District, Lac qui Parle - Yellow Bank Watershed District and the East Dakota Water Development District (Minnesota River Headwaters WRAPS, 2022).

Potential measures to achieve load reductions are identified:

Section 6.1 of the final TMDL document mentions a limited set of regulatory mechanisms that may be useful for control of non-point pollutant sources.

"The following are the current, existing nonpoint source statutes/rules in Minnesota:

- *50-foot buffer required for the shore impact zone of streams classified as protected waters (Minn. Stat. § 103F.201) for agricultural land uses and 16.5-foot minimum width buffer required on public drainage ditches (Minn. Stat. § 103E.021). As of March 2021, all the counties in the MRH Watershed are 95% to 100% in compliance (BWSR 2021).*
- *Protecting highly erodible land within the 300-foot shoreland district (Minn. Stat. § 103F.201).*
- *Excessive soil loss statute (Minn. Stat. § 103F.415).*
- *Nuisance nonpoint source pollution (Minn. R. 7050.0210, subp. 2)"* [4]

Information on an extensive set of standard BMPs for the reduction of *E. coli* and TP loads are available with technical support from the local Soil and Water Conservation Districts and the Natural Resource Conservation Service. Minnesota noted that BMP implementation is already ongoing in the basin and is expected to continue into the future. The WRAPS document was developed for the watershed in coordination with the parties identified above and other local stakeholder groups.

The Minnesota Nutrient Reduction Strategy is also cited by Minnesota as an additional source of information that can be used for nutrient reduction planning purposes.

Potential resource needs for implementation are identified:

In Section 6.2 of the final TMDL document, the Minnesota Clean Water Legacy Act is cited as a primary source of funding for TMDL load reduction implementation activities along with CWA Section 319 grants, the state Clean Water Partnership zero-interest loan program, the Agricultural BMP Loan Program, and the NRCS incentive program. The final TMDL document also notes that numerous programs and activities are also ongoing at the local government level. Over $53 million dollars have already been spent on water quality issues in the watershed since 2004.

The overall cost of the implementation activities needed to achieve the pollutant reductions is addressed in Section 8.3 of the final TMDL document. The state estimates that between $20 and $40 million dollars will be needed over the next 20 years.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the

[4] Page 78, Section 6.1 of the TMDL document.

eighth criterion.

Section 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.

Section 9 Review Comments

An effectiveness monitoring plan is provided.

> Follow up monitoring will be accomplished through the two existing water quality monitoring programs (Section 7 of the final TMDL document). The Intensive Watershed monitoring program monitors the basin for a period of 1 to 2 years once every ten years and includes approximately 13 stream and 7 lake monitoring stations. The Watershed Pollutant Load Monitoring Network includes a year-round monitoring station on the Minnesota River, and a seasonal station on the Yellow River.

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

Section 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.

Section 10 Review Comments

> Section 8 of the final TMDL document describes the State's implementation strategy.

Implementation of permitted point source loads is accomplished through the various NPDES programs. Section 8.2 of the final TMDL document provides a discussion of implementation of pollutant load reductions for non-permitted NPS pollutant loads. Table 52 of the final TMDL document provides a list of the various BMP measures that can be used to control bacteria and TP loads. Section 8.3 of the final TMDL document provides a discussion of costs and was discussed in this review document in Section 8 of this Decision Document under Reasonable Assurance. Section 8.4 of the final TMDL document discusses the State's commitment to using and adaptive management process for implementing NPS load reductions within the basin. The State noted that the use of Adaptive Management is critical when implementing NPS load reductions in large watersheds.

The WRAPS document for the MRH watershed provides a more detailed analysis of implementation actions and activities. The WRAPS document identifies priority areas for implementation, and the types of BMPs that will likely reduce pollutant loads.

While the implementation plan provides additional support to a demonstration of reasonable assurance, The EPA does not directly approve or disapprove of implementation plans.

Section 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.

Section 11 Review Comments

TMDL development provided for adequate public participation.

Public Participation Process is described.

The state communicated with the Soil and Water Conservation Districts (SWCDs), watershed districts, and other government staff in the six counties during the development of the TMDL. A meeting was also held in October 2020 with the NPDES permittees affected by the TMDL to explain the impacts and gather feedback.

An opportunity for public comment was provided and a summary of significant comments and the State's responses is included in/with the final TMDL submission.

The document was posted by Minnesota for public comment between January 10, 2022, and February 9, 2022. A public notice was posted in the Minnesota State Register to inform the public that the document was available for comment.

One comment letter was received by MPCA from EPA Region 5. The comments related to minor points of clarification and did not identify any errors with the study itself. The State added additional explanation to the text of the document to better explain the issues identified by EPA. The EPA comments as well as MPCA's response were included with the final TMDL submission.

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

Section 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.

Section 12 Review Comments:

A Submittal Letter is provided if formal review is desired.

A submittal letter from the Minnesota Pollution Control Agency Water Division Director to the U.S. Environmental Protection Agency Region 5 Water Division Director was transmitted to EPA along with the Final TMDL to be reviewed via Email on March 22, 2022. The letter requested final review of the Total Maximum Daily Load (TMDL) study for impairments of *E. coli* and phosphorus for the Minnesota River - Headwaters Watershed.

During the review of the TMDL, an error was noted in Table 20 regarding the WWTP facilities discharging *E. coli*. Minnesota submitted a revised TMDL with a corrected Table 20 on April 7,

2022. No other changes to the document were made. This Decision Document reflects the review of the corrected final TMDL document.

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

Section 13: Conclusions

After a full and complete review, EPA finds that the TMDL study satisfies all of the elements of an approvable TMDL.

The EPA is approving 11 TMDLs for *E. coli* and 5 TMDLs for Total Phosphorus for a total of 16 TMDLs. The waterbody pollutant/parameter combinations to which this approval applies are listed in Table 1 below.

EPA's approval of this TMDL extends to the water body identified in Table 1 with the exception of any portions of the water body that is 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.

DD Table 1 - TMDLs approved as part of this decision document.

Assessment Unit ID	Waterbody Name	Designated Use	Parameter
Approved TMDLs for stream segments impaired by excess bacteria			
07020001-504	Unnamed creek (West Salmonsen Creek), Unnamed cr to Big Stone Lk	Aquatic Recreation	*E. coli*
07020001-508	Little Minnesota River, MN/SD border to Big Stone Lk	Aquatic Recreation	*E. coli*
07020001-521	Unnamed creek (Five Mile Creek), Unnamed cr to Marsh Lk	Aquatic Recreation	*E. coli*
07020001-531	Stony Run Creek, Unnamed cr to Minnesota R	Aquatic Recreation	*E. coli*
07020001-536	Stony Run Creek, Long Tom Lk to Unnamed cr	Aquatic Recreation	*E. coli*
07020001-541	Unnamed creek, Unnamed cr to Big Stone Lk	Aquatic Recreation	*E. coli*
07020001-547	Emily Creek, Unnamed cr to Lac qui Parle Lk	Aquatic Recreation	*E. coli*
07020001-551	Unnamed creek, Headwaters to S Fk Yellow R	Aquatic Recreation	*E. coli*
07020001-568	Unnamed creek (Meadowbrook Creek), 340th St to Big Stone Lk	Aquatic Recreation	*E. coli*
07020001-570	Unnamed creek, CSAH 38 to Marsh Lk	Aquatic Recreation	*E. coli*
07020001-571	Fish Creek, Headwaters to CSAH 33	Aquatic Recreation	*E. coli*
Approved TMDLs for lakes impared by excess nutrients.			
06-0029-00	Long Tom, Lake or Reservoir	Aquatic Recreation	Total Phosphorus
06-0060-00	Unnamed, Lake or Reservoir	Aquatic Recreation	Total Phosphorus
06-0152-00	Big Stone, Lake or Reservoir	Aquatic Recreation	Total Phosphorus
37-0046-01	Lac qui Parle (SE Bay), Lake or Reservoir	Aquatic Recreation	Total Phosphorus
37-0046-02	Lac qui Parle (NW Bay), Lake or Reservoir	Aquatic Recreation	Total Phosphorus

Attachment 1 TMDL Summary Tables

The eleven *E. coli* TMDLs are summarized below in Tables 21, 23, 24, 25, 26, 27, 28, 30, 31, 32, and 33 excerpted from Section 4.3.6 of the final TMDL document.

Table 21: *E. coli* allocations for Unnamed creek (West Salmonsen Creek), Unnamed cr to Big Stone Lk (07020001-504), based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	98	32	12	3.8	0.89
Wasteload Allocation	0	0	0	0	0
Load Allocation	88	29	11	3.4	0.8
Margin of Safety (MOS)	9.8	3.2	1.2	0.38	0.09
Average existing monthly geometric mean	653 org/100 mL				
Overall estimated percent reduction[2]	81%				

[1]Baseline year is 2012 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 23. *E. coli* allocations for Little Minnesota River, MN/SD border to Big Stone Lk (07020001-508). Loading capacity and allocations are for Minnesota only and are based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	31	11	3.6	1.2	0.22
Wasteload Allocation	0	0	0	0	0
Load Allocation	28	10	3.2	1.1	0.20
Margin of Safety (MOS)	3.1	1.1	0.36	0.12	0.02
Average existing monthly geometric mean	371 org/100 mL				
Overall estimated percent reduction[2]	66%				

[1]Baseline year is 2015 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 24. *E. coli* allocations for Unnamed creek (Five Mile Creek), Unnamed cr to Marsh Lk (07020001-521), based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	**413**	**90**	**22**	**3.6**	**0.8**
Wasteload Allocation	**0**	**0**	**0**	**0**	**0**
Load Allocation	**372**	**81**	**20**	**3.2**	**0.72**
Margin of Safety (MOS)	**41**	**9.0**	**2.2**	**0.36**	**0.08**
Average existing monthly geometric mean	**361 org/100 mL**				
Overall estimated percent reduction[2]	**65%**				

[1]Baseline year is 2015 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 25. *E. coli* allocations for Stony Run Creek, Unnamed cr to Minnesota R (07020001-531), based on the 126 organisms/100 mL standard.

Escherichia coli		Flow Condition				
		Very High	High	Mid-Range	Low	Very Low
		[Billion organisms/day]				
Loading Capacity[1]		**750**	**247**	**90**	**22**	**5.6**
Wasteload Allocation	*Clinton WWTP*	3.6	3.6	3.6	3.6	3.6
	Total WLA	**3.6**	**3.6**	**3.6**	**3.6**	**3.6**
Load Allocation	**Total LA**	**671**	**218**	**77**	**16**	**1.4**
Margin of Safety (MOS)		**75**	**25**	**9.0**	**2.2**	**0.56**
Average existing monthly geometric mean		**347 org/100 mL**				
Overall estimated percent reduction[2]		**64%**				

[1]Baseline year is 2015 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 26. *E. coli* allocations Stony Run Creek, Long Tom Lk to Unnamed cr (07020001-536), based on the 126 organisms/100 mL standard.

Escherichia coli		Flow Condition				
		Very High	High	Mid-Range	Low	Very Low
		[Billion organisms/day]				
Loading Capacity[1]		**492**	**137**	**41**	**4.7**	**0.15**
Wasteload Allocation	*Clinton WWTF*	3.6	3.6	3.6	3.6	###[2]
	Total WLA	**3.6**	**3.6**	**3.6**	**3.6**	**###**[2]
Load Allocation	**Total LA**	**439**	**119**	**33**	**0.63**	**###**[3]
Margin of Safety (MOS)		**49**	**14**	**4.1**	**0.47**	**0.02**
Average existing monthly geometric mean		**260 org/100 mL**				
Overall estimated percent reduction[4]		**52%**				

[1]Baseline year is 2012 for this TMDL.
[2]### = The permitted wastewater design flows exceed the stream flow in the indicated flow zone(s). The allocations are expressed as an equation rather than an absolute number, WLA = (flow contribution from a given source) x (126 org per 100 mL) x conversion factor (see Section 4.3.3).
[3]WLA exceeded load capacity for this zone, therefore LA is determined by the formula: Allocation = (flow from a given source) X (*E. coli* concentration standard).
[4]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 27. *E. coli* allocations for Unnamed creek, Unnamed cr to Big Stone Lk (07020001-541), based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	**122**	**39**	**15**	**4.7**	**1.2**
Wasteload Allocation	**0**	**0**	**0**	**0**	**0**
Load Allocation	**110**	**35**	**13**	**4.2**	**1.1**
Margin of Safety (MOS)	**12**	**3.9**	**1.5**	**0.47**	**0.12**
Average existing monthly geometric mean	**1,108 org/100 mL**				
Overall estimated percent reduction[2]	**89%**				

[1]Baseline year is 2015 for this TMDL.
[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 28. *E. coli* allocations for Emily Creek, Unnamed cr to Lac qui Parle Lk (07020001-547), based on the 126 organisms/100 mL standard.

Escherichia coli		Flow Condition				
		Very High	High	Mid-Range	Low	Very Low
		[Billion organisms/day]				
Loading Capacity[1]		**144**	**24**	**5.4**	**1.3**	**0.13**
Wasteload Allocation	*ISD 2853 Lac qui Parle Valley High School*	1.4	1.4	1.4	###[3]	###[2]
	Total WLA	**1.4**	**1.4**	**1.4**	**###[3]**	**###[2]**
Load Allocation	Total LA	**129**	**20**	**3.5**	**###[4]**	**###[3]**
Margin of Safety (MOS)		**14**	**2.4**	**0.54**	**0.13**	**0.013**
Average existing monthly geometric mean		**1,299 org/100 mL**				
Overall estimated percent reduction[4]		**90%**				

[1]Baseline year is 2015 for this TMDL.

[2]### = The permitted wastewater design flows exceed the stream flow in the indicated flow zone(s). The allocations are expressed as an equation rather than an absolute number, WLA = (flow contribution from a given source) x (126 org per 100 mL) x conversion factor (see Section 4.3.3).

[3]WLA exceeded load capacity for this zone, therefore LA is determined by the formula: Allocation = (flow from a given source) X (*E. coli* concentration standard).

[4]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 30. *E. coli* allocations for Unnamed creek, Headwaters to S Fk Yellow R (07020001-551). Loading capacity and allocations are for Minnesota only and are based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	**8.7**	**2.9**	**1.1**	**0.29**	**0.08**
Wasteload Allocation	0	0	0	0	0
Load Allocation	7.8	2.6	1.0	0.26	0.07
Margin of Safety (MOS)	0.87	0.29	0.11	0.029	0.008
Average existing monthly geometric mean	**638 org/100 mL**				
Overall estimated percent reduction[2]	**80%**				

[1]Baseline year is 2015 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 31. *E. coli* allocations for Unnamed creek (Meadowbrook Creek), 340th St to Big Stone Lk (07020001-568), based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	65	21	7.7	2.3	0.50
Wasteload Allocation	0	0	0	0	0
Load Allocation	59	19	6.9	2.1	0.45
Margin of Safety (MOS)	6.5	2.1	0.77	0.23	0.05
Average existing monthly geometric mean	276 org/100 mL				
Overall estimated percent reduction[2]	64%				

[1]Baseline year is 2015 for this TMDL.
[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 32. *E. coli* allocations for Unnamed creek, CSAH 38 to Marsh Lk (07020001-570), based on the 126 organisms/100 mL standard.

Escherichia coli		Flow Condition				
		Very High	High	Mid-Range	Low	Very Low
		[Billion organisms/day]				
Loading Capacity[1]		204	33	7.7	2.1	0.44
Wasteload Allocation	*Bellingham WWTP*	1.6	1.6	1.6	1.6	###[2]
	Total WLA	1.6	1.6	1.6	1.6	###[2]
Load Allocation	Total LA	182	28	5.3	0.27	###[3]
Margin of Safety (MOS)		20	3.3	0.77	0.21	0.044
Average existing monthly geometric mean		289 org/100 mL				
Overall estimated percent reduction[4]		56%				

[1]Baseline year is 2015 for this TMDL.
[2]### = The permitted wastewater design flows exceed the stream flow in the indicated flow zone(s). The allocations are expressed as an equation rather than an absolute number, WLA = (flow contribution from a given source) x (126 org per 100 mL) x conversion factor (see Section 4.3.3).
[3]WLA exceeded load capacity for this zone, therefore LA is determined by the formula: Allocation = (flow from a given source) X (*E. coli* concentration standard).
[4]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

Table 33. *E. coli* allocations for Fish Creek, Headwaters to CSAH 33 (07020001-571), based on the 126 organisms/100 mL standard.

Escherichia coli	Flow Condition				
	Very High	High	Mid-Range	Low	Very Low
	[Billion organisms/day]				
Loading Capacity[1]	**169**	**56**	**20**	**6.1**	**1.5**
Wasteload Allocation	**0**	**0**	**0**	**0**	**0**
Load Allocation	**152**	**50**	**18**	**5.5**	**1.3**
Margin of Safety (MOS)	**17**	**5.6**	**2.0**	**0.61**	**0.15**
Average existing monthly geometric mean	**282 org/100 mL**				
Overall estimated percent reduction[2]	**55%**				

[1]Baseline year is 2015 for this TMDL.

[2]The overall estimated percent reduction is the reduction in the average geometric mean to meet the 126 org/100 mL standard.

TMDL Summary Tables for Lakes Impaired by Excess Nutrients.

The five Total Phosphorus TMDLs are summarized below in Tables 43, 44, 46, 48, and 50 excerpted from Section 4.4.7 of the final TMDL document.

Table 43. TP TMDL for Unnamed Lake (06-0060-00).

Unnamed Lake (06-0060-00)		Existing Phosphorus Load		Allowable Phosphorus Load		Estimated Load Reduction	
		lbs/yr	lbs/day[1]	lbs/yr	lbs/day[1]	lbs/yr	%
Total Load/Loading Capacity		**20,348**	**56**	**5,714**	**16**	**14,633**	**72%**
Wasteload Allocation	**Total WLA**	**118.7**	**0.33**	**307**	**0.84**	**0**	**0%**
	Clinton WWTF[2]	113	0.31	301	0.83	0	0%
	Construction/Industrial Stormwater[3]	5.7	0.016	5.7	0.016	0	0%
Load Allocation	**Total LA**	**20,229**	**55**	**4,836**	**13**	**15,393**	**76%**
	Nonpoint Sources	13,771	37	4,645	12.7	9,126	66%
	Internal Loading	6,434	18	167	0.46	6,267	97%
	Atmosphere	24	0.066	24	0.066	0	0%
Margin of Safety (MOS)[4]				**571**	**1.6**		

[1]Based on Annual Loads divided by 365 days.
[2]Based on average annual loads available for 2008-2018 (MPCA 2020c). Baseline Year is 2016.
[3]Assumes 0.1% of allowable load capacity. Assumes existing permits are being met with current BMPs.
[4]Based on explicit 10% MOS.

Table 44. TP TMDL for Long Tom Lake (06-0029-00).

Long Tom Lake (06-0029-00)		Existing Phosphorus Load		Allowable Phosphorus Load		Estimated Load Reduction	
		lbs/yr	lbs/day[1]	lbs/yr	lbs/day[1]	lbs/yr	%
Total Load/Loading Capacity		**16,111**	**44**	**4,667**	**13**	**11,444**	**71%**
Wasteload Allocation	**Total WLA**	**118**	**0.32**	**306**	**0.84**	**0**	**0%**
	Clinton WWTF[2]	113	0.31	301	0.83	0	0%
	Construction/Industrial Stormwater[3]	4.7	0.013	4.7	0.013	0	0%
Load Allocation	**Total LA**	**15,993**	**44**	**3,894**	**11**	**12,099**	**76%**
	Nonpoint Sources	142	0.39	142	0.39	0	0%
	Atmosphere	55	0.15	55	0.15	0	0%
	Unnamed Lake[4]	15,796	43	3,697	10	12,099	77%
Margin of Safety (MOS)[5]				**467**	**1.3**		

[1]Based on Annual Loads divide by 365 days.
[2]Based on average annual loads available for 2008-2018 (MPCA 2020c). Baseline Year is 2016.
[3]Assumes 0.1% of allowable load capacity. Assumes existing permits are being met with current BMPs.
[4]Outflow from Unnamed Lake, based on CNET modeling.
[5]Based on Explicit 10% MOS.

Table 46. TP TMDL for Big Stone Lake (06-0152-00).

Big Stone (06-0152-00)		Existing Phosphorus Load		Allowable Phosphorus Load		Estimated Load Reduction	
		lbs/yr	lbs/day[1]	lbs/yr	lbs/day[1]	lbs/yr	%
Total Load/Loading Capacity		**29,235**	**80**	**16,960**	**46**	**12,275**	**42%**
Wasteload Allocation	**Total WLA**	**17**	**0.046**	**17**	**0.046**	**0**	**0%**
	Construction/Industrial Stormwater[2]	17	0.046	17	0.046	0	0%
Load Allocation	**Total LA**	**29,218**	**80**	**15,247**	**41**	**13,971**	**48%**
	Atmosphere	4,428	12	4,428	12	0	0%
	Nonpoint Sources	24,790	68	10,819	29	13,971	56%
Margin of Safety (MOS)[3]				**1,696**	**4.6**		

[1]Based on Annual Loads divided by 365 days.
[2]Assumes 0.1% of allowable load capacity. Assumes existing permits are being met with current BMPs.
[3]Based on explicit 10% MOS.

Table 48. TP TMDL for Lac qui Parle Lake – NW Bay (37-0046-02).

Lac qui Parle Lake-NW Bay (37-0046-02)		Existing Phosphorus Load		Allowable Phosphorus Load		Estimated Load Reduction	
		lbs/yr	lbs/day[1]	lbs/yr	lbs/day[1]	lbs/yr	%
Total Load/Loading Capacity		**214,064**	**586**	**78,431**	**215**	**135,633**	**63%**
Wasteload Allocation	**Total WLA**	**4,844**	**13**	**9,353**	**26**	**210**	**4.5%**
	Alberta WWTP	41	0.11	140	0.38	0	0%
	Appleton WWTP	1,534	4.2	1,339	3.67	195	13%
	Ashby WWTP	362	0.99	616	1.69	0	0%
	Barrett WWTP	140	0.38	645	1.77	0	0%
	Bellingham WWTP	52	0.14	183	0.50	0	0%
	Chokio WTP	33	0.09	18	0.05	15	45%
	Chokio WWTP	63	0.17	597	1.64	0	0%
	Clinton WWTP	113	0.31	301	0.83	0	0%
	DENCO II LLC	417	1.14	761	2.09	0	0%
	ISD 2853 Lac qui Parle Valley High School	21	0.06	140	0.38	0	0%
	Morris WWTP	1,288	3.5	2,935	8.04	0	0%
	Odessa WWTP	28	0.077	158	0.43	0	0%
	Ortonville WWTP	541	1.5	1,309	3.6	0	0%
	Morris MS400274[2]	133	0.37	133	0.37	0	0%
	Construction/Industrial Stormwater[3]	78	0.21	78	0.21	0	0%
Load Allocation	**Total LA**	**209,220**	**573**	**60,830**	**167**	**148,390**	**71%**
	Atmosphere	780	2.1	780	2.1	0	0%
	Pomme de Terre River	104,197	285	33,636	92	70,561	68%
	Nonpoint Sources	104,243	286	26,414	73	77,829	75%
Margin of Safety (MOS)[4]				**7,843**	**21**		
Reserve Capacity				**405**	**1.1**		

[1]Based on Annual Loads divided by 365 days. Baseline Year is 2016.
[2]WLA for Morris MS4 area is taken as 0.17% of the load capacity.
[3]Assumes 0.1% of allowable load capacity. Assumes existing permits are being met with current BMPs.
[4]Based on explicit 10% MOS.

Table 50. TP TMDL for Lac qui Parle Lake – SE Bay (37-0046-01).

Lac qui Parle Lake-SE Bay (37-0046-01)		Existing Phosphorus Load		Allowable Phosphorus Load		Estimated Load Reduction	
		lbs/yr	lbs/day[1]	lbs/yr	lbs/day[1]	lbs/yr	%
Total Load/Loading Capacity		**403,075**	**1,104**	**244,149**	**669**	**158,926**	**39%**
Wasteload Allocation	**Total WLA**	**12,507**	**34**	**33,541**	**92**	**966**	**8%**
	WWTF[2]	12,068	33	33,102	90.7	966	8%
	Morris MS400274[3]	195	0.54	195	0.54	0	0%
	Construction/Industrial Stormwater[4]	244	0.67	244	0.67	0	0%
Load Allocation	**Total LA**	**390,568**	**1,070**	**185,087**	**507**	**205,481**	**53%**
	Atmosphere	1,329	3.6	1,329	3.6	0	0%
	Chippewa River	185,796	509	82,002	225	103,794	56%
	Lac qui Parle River	84,806	232	55,264	151	29,542	35%
	Nonpoint Sources	3,468	9	1,376	3	2,092	60%
	Lac qui Parle NW Bay	115,169	316	45,116	124	70,053	61%
Margin of Safety (MOS)[5]				**24,415**	**67**		
Reserve Capacity				**1,106**	**3.0**		

[1]Based on Annual Loads divided by 365 days. Baseline Year is 2016.
[2]List of individual WWTP provide in Table 51.
[3]WLA for Morris MS4 is taken as 0.08% of load capacity.
[4]Categorical Construction and ISW, Assumed 0.1% of LC for each.
[5]Based on explicit 10% MOS.

Attachment 2 Approved NPDES Facility Wasteload Allocations

Attachment 2 - Table 1
Approved Total Phosphorus Waste Load Allocations for NPDES Facilities

Facility	Permit Number	Domestic vs. Industrial	Phosphorus WLA (lbs/day)
Ag Processing Inc	MN0040134	Industrial	14.69
Alberta WWTP	MNG580002	Domestic	0.384
Appleton WWTP	MN0021890	Domestic	3.67
Ashby WWTP	MNG580087	Domestic	1.686
Barrett WWTP	MNG580173	Domestic	1.768
Bellingham WWTP	MNG580152	Domestic	0.5
Benson WWTP	MN0020036	Domestic	8.215
Canby WWTP	MNG580154	Domestic	5.655
Chokio WTP	MNG640022	Industrial	0.05
Chokio WWTP	MNG580007	Domestic	1.635
Clinton WWTP	MNG580193	Domestic	0.826
Clontarf WWTP	MNG580108	Domestic	0.4
Danvers WWTP	MNG585119	Domestic	0.384
Dawson WWTP	MN0021881	Domestic	3.928
DeGraff WWTP	MN0071234	Domestic	0.357
DENCO II LLC	MN0060232	Industrial	2.09
Duininck Inc – SD113	MNG490046	Industrial	3.253
Evansville WWTP	MNG585074	Domestic	0.833
Farwell Kensington Sanitary District WWTP	MNG585220	Domestic	1.274
Hancock WWTP	MNG585299	Domestic	3.049
Hendricks WWTP	MN0021121	Domestic	3.086
Hoffman WWTP	MNG585134	Domestic	2.651
ISD 2853 Lac qui Parle Valley High School	MNG580091	Domestic	0.384
Kerkhoven WWTP	MN0020583	Domestic	4.378
LG Everist Inc – SD001	MN0068764	Industrial	0.975
Lowry WWTP	MNG585123	Domestic	0.368
Madison WWTP	MN0051764	Domestic	4.003
Marietta WWTP	MNG580160	Domestic	0.55
Milan WWTP	MNG580141	Domestic	1.118
Millerville WWTP	MN0054305	Domestic	0.326
Morris WWTP	MN0021318	Domestic	8.04
Murdock WWTP	MNG585086	Domestic	0.718
Odessa WWTP	MNG580099	Domestic	0.434
Ortonville WWTP	MNG580151	Domestic	3.586
PURIS Proteins LLC	MN0048968	Industrial	2.5
Starbuck WWTP	MN0021415	Domestic	2.5

Sunburg WWTP	MNG585125	Domestic	0.26
Urbank WWTP	MNG585343	Domestic	0.181

Attachment 2 - Table 2: NPDES WWTP *E. coli* approved WLAs

Name	Permit No.	Flow Condition				
		Very High	**High**	**Mid-Range**	**Low**	**Very Low**
		[Billion organisms/day]				
Bellingham WWTP	MNG580152	1.6	1.6	1.6	1.6	##
Clinton WWTP	MNG580193	3.6	3.6	3.6	3.6	3.6
ISD 2853 Lac qui Parle Valley High School	MNG580091	1.4	1.4	1.4	##	##

= The permitted wastewater design flows exceed the stream flow in the indicated flow zone(s). See individual TMDL summary Tables and Section 4.3 of the TMDL for more information when calculating WLA.