

**STATE OF MINNESOTA
POLLUTION CONTROL AGENCY**

**In the Matter of the Decision to Deny the Petitions for
a Contested Case Hearing and to Submit the Draft
South Metro Mississippi River Total Suspended
Solids Total Maximum Daily Load to the U.S.
Environmental Protection Agency for Approval**

**FINDINGS OF FACT,
CONCLUSIONS OF LAW
AND ORDER**

Pursuant to the federal Clean Water Act (33 U.S. Code Sec. 1251-1387) the Minnesota Pollution Control Agency (MPCA) staff prepared the draft South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load (TMDL) for submission to the U.S. Environmental Protection Agency (EPA) for approval. After affording all interested persons the opportunity to present written and oral data, statements, and arguments to the MPCA, and after considering all of the evidence in the records, files, and proceedings herein, the MPCA Commissioner, being fully advised, hereby adopts the following Findings of Fact, Conclusions of Law and Order.

I. FINDINGS OF FACT

A. *Jurisdiction*

1. The MPCA is authorized and required to administer and enforce all laws relating to the pollution of any waters of the state. Minn. Stat. § 115.03, subd. 1(a).
2. The MPCA is also authorized “to investigate the extent, character, and effect of the pollution of the waters of this state and to gather data and information necessary or desirable in the administration or enforcement of pollution laws, and to make such classification of the waters of the state as it may deem advisable.” Minn. Stat. § 115.03, subd. 1(b).
3. The MPCA Commissioner is authorized to decide on behalf of the MPCA whether to grant or deny the petitioners request for a contested case hearing in this matter. Minn. Stat. § 116.03, subd. 1(c) (2014).
4. Similarly, the MPCA Commissioner is authorized to order TMDLs be submitted to EPA. *Id.*

B. *Background/ Overview of TMDL Process*

5. Congress passed the Clean Water Act in 1972 to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251. To achieve this, Congress sought to eliminate the discharge of pollutants into the navigable waters. *Id.* The Clean Water Act requires that states establish water quality standards, based on the designated use for that particular body of water. 33 U.S.C. §1313 (a)-(c).

6. The Clean Water Act focuses on two possible sources of pollution: point sources and nonpoint sources. In addition, the Clean Water Act includes two basic types of pollution control requirements; technology-based effluent limits and water-quality effluent limits. 40 C.F.R. § 130.
7. The term “point source” means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture. Section 502(14) of the Clean Water Act.
8. The EPA considers nonpoint source pollution to mean any source of water pollution that does not meet the legal definition of “point source” in section 502(14) of the Clean Water Act. <http://water.epa.gov/polwaste/nps/whatis.cfm>
9. Nonpoint sources are not regulated by permits due to the difficulty involved in tracing the pollution back to a particular point, measuring it and setting an acceptable level for that point. *Sierra Club v. Meiburg*, 296 F.3d 1021, 1025 (11th Cir. 2002).
10. Point source pollution is subject to technology-based controls imposed by the National Pollution Discharge Elimination System (NPDES) permit process. The NPDES permit process sets quantitative limits on the amount of pollutants released from each point source. The EPA delegated its duties to establish and operate its NPDES permit programming authority to the State of Minnesota, which operates the program through the MPCA. 33 U.S.C. §1342 (b).
11. The NPDES permits include technology-based effluent limits and also may include water quality effluent limits to meet water quality standards.
12. Technology-based controls are minimum pollution control requirements that must be met regardless of the potential impact a discharge may have on a receiving water. Technology-based controls are discharge limitations based on the capabilities of an industry or class of dischargers to treat influent by using pollution control technology. Technology-based controls consider technological feasibility and cost and specify the quality of effluent a discharger may release to surface waters.
13. Water quality based effluent limits consider the impact a discharge will have on the receiving water. When water quality based effluent limits are developed, technical feasibility and economic reasonableness are not factors considered.

14. Achieving the specific water quality standard applied to a body of water may require more stringent limitations on point-source discharges, due to the contribution of pollutants from nonpoint sources. *Id.* Individual discharge permits will be adjusted and other measures taken, to reduce the amount of a pollutant in a water body to the level specified in the applicable TMDL.
15. Section 303(d) of the Clean Water Act establishes the TMDL program, a water-quality based approach to regulating waters that fail to meet water quality standards despite the application of effluent limits and other pollution control requirements to those waters. 33 U.S.C. § 1313(d)(1)(A)-(C).
16. The TMDLs are water-quality based controls. They are used to supplement technology-based controls where necessary. If technology-based effluent limits are, for some reason, failing to ensure that a given water is meeting all applicable water quality standards, then more stringent requirements based on the actual quality of the receiving water may be imposed. 33 U.S.C. § 1313(d)(1)(A)-(C).
17. A TMDL expresses the maximum amount of a particular pollutant that can pass through a water body each day without violating water quality standards. 33 U.S.C. § 1313(d)(1)(C) and (D).
18. Section 303(d)(1) requires each state provide the EPA a list of all waters within the state boundaries that do not comply with applicable water quality standards despite the application of effluent limits to those waters. 33 U.S.C. § 1313(d)(1)(A) and (B). This list is known as the “303(d) list.”
19. Each body of water where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards, even after the application of the technology-based effluent limitations required is known as a “reach” or “water quality limited segment” (WQLS or “limited segment”). 40 C.F.R. § 130.2(j).
20. Minnesota must set a TMDL for every pollutant in each reach preventing or impeding compliance with applicable water quality standards. 33 U.S.C. § 1313(d)(1)(C); 40 CFR 130.7(c)(ii)(1)(ii).
21. A TMDL is the sum of the allocated loads of pollutants set at a level necessary to meet the applicable water quality standards. A TMDL includes wasteload allocations from point sources, load allocations from nonpoint sources and natural background conditions, a margin of safety, and in some cases a reserve capacity if determined to be necessary for future growth. A TMDL must also consider seasonal variations. 33 U.S.C. § 1313(d)(1)(C) and (d)(1)(D)(3); 40 C.F.R. § 130.7 (6)(c)(1). (*See also*, U.S. Environmental Protection Agency, “Guidance for Water Quality-Based Decisions: The TMDL Process,”

- Office of Water, WH-S53, Washington D.C., April 1991). 40 C.F.R. § 130.2(i). This process was followed by MPCA in developing the draft South Metro Mississippi River Total Suspended Solids TMDL.
22. A Wasteload Allocation (WLA) is the portion of a TMDL allocated to existing and/or future point sources. 40 C.F.R. § 130.2(h).
 23. A Load Allocation (LA) refers to the portion of a receiving water's loading capacity attributed to nonpoint sources of pollution and natural background sources. Load allocations are best estimates of the allowable loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished. 40 CFR § 130.2 (g).
 24. The EPA defines "natural background level" as "chemical, physical, and biological levels representing conditions that would result from natural processes, such as weathering and dissolution." U.S. E.P.A., *Clean Water Act, Total Maximum Daily Loads (303d): Glossary*, <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/glossary.cfm>
 25. Minnesota Rule 7050.0150, subp. 4 defines "Natural causes" as the multiplicity of factors that determine the physical, chemical, or biological conditions that would exist in a water body in the absence of measurable impacts from human activity or influence. Minn. R. 7050.0150, subp. 4 (2011).
 26. Minnesota Statute § 114D.15, subd. 10, the Clean Water Legacy Act, defines "natural background" as meaning "characteristics of the water body resulting from the multiplicity of factors in nature, including climate and ecosystem dynamics, that affect the physical, chemical, or biological conditions in a water body, but does not include measurable and distinguishable pollution that is attributable to human activity or influence." Minn. Stat. § 114D.15, subd. 10 (2014).
 27. Based on the definitions provided by EPA and in Minnesota Statute and Rule, the MPCA hereby finds that "natural background" is the condition that occurs outside of human influence. The pollutant load from a natural process that is accelerated due to human influence is not natural background. For example, wind erosion or surficial water erosion are natural processes, but the rate of these processes can be significantly increased if people remove plant cover from the soil.
 28. A Margin of Safety (MOS) accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving water body. The MOS may be "implicit" and incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models). The MOS may also be added explicitly as a separate component of the TMDL.

29. A TMDL is generally expressed as the equation: $WLA + LA + MOS = TMDL$. Where the pollutant sources within either the wasteload or load category are contributing more than the allowable amount they will then need to reduce their loading to meet the allowable amount. Seasonal variation must also be taken into account in development of the TMDL.
30. An important distinction must be made between a water body impaired due to natural vs. anthropogenic factors. If a water body is determined not to meet water quality standards solely due to natural conditions, a TMDL is not required and the natural background condition becomes the standard (U.S. E.P.A., Office of Wetlands, Oceans, and Watersheds, *Consolidated Assessment and Listing Methodology, Toward a Compendium of Best Practices* (2002); Minn. R. 7050.0170). Natural background standards have consequences for future sources since loading increases that result in a “discernable impact from point or nonpoint source pollutants attributable to human activity” are not permissible.
31. In Minnesota, a water body not meeting water quality standards solely due to natural conditions is very rare. To date these have been primarily limited to streams impaired for dissolved oxygen, with the natural source being wetlands (which are rich in organic material that consumes oxygen). There have been no sediment-impaired waters deemed impaired solely due to natural conditions.
32. In June 2009, MPCA formed a “Natural Background for Streams Workgroup” to develop a strategy to determine how natural background conditions may be considered in the assessment and TMDL listing process.
33. The MPCA developed a guidance document related to the assessment of natural background in water quality: Minnesota Pollution Control Agency, Natural Background and Water Quality: Guidance Document for Assessment of Aquatic Life Use Support, Doc. No. wq-s1-62 (2009), available at <http://www.pca.state.mn.us/index.php/view-document.html?gid=8603>
34. The EPA promulgated guidance for the individual states to follow as they develop their proposed TMDLs. The proposed TMDL in this case is consistent with EPA guidance as set forth in U.S. E.P.A., Office of Water, *Protocol for Developing Sediment TMDLs*, EPA 841-B-99-004 (1999), available at http://water.epa.gov/type/watersheds/named/msbasin/upload/1999_12_8_tmdl_sediment_sediment.pdf.
35. In addition to EPA guidance the MPCA developed a “Sediment TMDL Protocols and Submittal Requirements” guidance document to further aid local entities in the development of TMDLs. Minnesota Pollution Control Agency, *Sediment TMDL*

Protocols and Submittal Requirements, (2007), available at <http://www.pca.state.mn.us/index.php/view-document.html?gid=8525>.

C. *The draft South Metro Mississippi River Total Suspended Solids TMDL / Stakeholder Involvement, Public Notice and Comment Period*

36. The proposed TMDL at issue in this case is the draft South Metro Mississippi River Total Suspended Solids TMDL. The draft South Metro Mississippi River Total Suspended Solids TMDL encompasses five contiguous impaired reaches within the South Metro Mississippi River watershed.
37. A site-specific water quality standard was developed for the impaired reaches within the South Metro Mississippi River watershed to replace the state water quality standard of 25 nephelometric turbidity units. The site-specific water quality standard for these reaches is 32 milligrams per liter (mg/L) of total suspended solids (TSS) expressed as a summer mean value and occurring in at least five summers over a period of 10 years.
38. The site-specific water quality standard used in the draft South Metro Mississippi River Total Suspended Solids TMDL was developed prior to completion of the TMDL. A public comment period announced via a public notice was held and the MPCA board approved the site-specific standard in June 2010. The EPA reviewed site-specific standard and approved it in November 2010.
39. The primary objective of the draft South Metro Mississippi River Total Suspended Solids TMDL is to determine the type and degree of pollutant source reductions needed to achieve the site-specific water quality standard.
40. The draft South Metro Mississippi River Total Suspended Solids TMDL was completed in a manner consistent with U.S. EPA guidance and developed by the MPCA with support from contractors including LimnoTech, Inc. for water quality modeling and the National Center for Earth Surface Dynamics, St. Croix Watershed Research Station—Science Museum of Minnesota and University of Minnesota for sediment source research.
41. The draft South Metro Mississippi River Total Suspended Solids TMDL includes a summary of the characterization and quantification of historic sedimentation in the river system. This characterization and quantification was based on a study by researchers at the St. Croix Watershed Research Station—Science Museum of Minnesota and Cleveland State University. The study quantified sediment accumulation rates for the water bodies of this project through analysis of 25 sediment cores using techniques including radiocarbon dating, Cesium-137 dating, Lead-210 dating, pollen analysis and diatom analysis. (See Engstrom, D.E., J.E. Almendinger and J.A. Wolin. 2009. “Historical changes in sediment and phosphorus loading in the upper Mississippi River:

- mass balance reconstructions from the sediments of Lake Pepin”. J. Paleolimnology 41: 563-588.)
42. Information from the Engstrom et al. study was used in the draft South Metro Mississippi River Total Suspended Solids TMDL to estimate that 10 percent of the current total sediment load is attributable to natural background.
 43. The draft South Metro Mississippi River Total Suspended Solids TMDL drew on numerous published studies to provide information on the relative contributions of sediment from different sources (including overland runoff and erosion from river banks and bluffs) and how the relative contributions have changed over time.
 44. The draft South Metro Mississippi River Total Suspended Solids TMDL includes a summary of a study conducted within the Minnesota River basin, which is the primary sediment contributor within the project area, that correlated anthropogenic actions on the landscape (including changes of crop type and artificial drainage of wetlands and other agricultural soils) to changes in river hydrology, specifically increased frequency and volume of river flow. (*See Schottler S.P., J. Ulrich, P. Belmont, R. Moore, J.W. Lauer, D.R. Engstrom and J.E. Almendinger. 2013. Twentieth century agricultural drainage creates more erosive rivers. Hydrological Processes DOI: 10.1002/hyp.9738.*)
 45. The study by Schottler et al. evaluated precipitation and “water yield” (the flow volume per watershed area) and their relationship to sediment loading. They reported that early season (May-June) precipitation has been constant or has decreased since 1940, but that early season water yield has increased dramatically for many of the watersheds in the study, particularly some that are the highest contributors of sediment. They indicate that annual precipitation has increased, but by less than 15 percent and predominantly due to more late season (September-October) rainfall. They report only small increases in late season water yield since 1940.
 46. It is a basic and broadly accepted principle of river geomorphology that more frequent high river flows (i.e., increasing water yield) cause more erosion of banks and bluffs. This principle applies to the drainage area of the South Metro Mississippi River.
 47. Data for the South Metro Mississippi River project area indicate that the breakdown of land area (excluding area wetlands and water bodies) by land cover types is: 52% cultivated cropland, 20% forest, 18% grass/pasture and 10% developed.
 48. A 45-member Stakeholder Advisory Committee consisting of local, state, and federal agencies, interest groups, organizations, and citizens was established and met at least 12 times since 2004 to oversee the development of the TSS site-specific standard and the draft South Metro Mississippi River Total Suspended Solids TMDL.

49. A Science Advisory Panel chaired by the University of Minnesota Water Resources Center reviewed the water quality modeling, endorsed the site-specific TSS standard used for the TMDL, and recommended proceeding with the TMDL.
50. MPCA held multiple events to involve the broader public, including annual forums and conferences, informational meetings and open houses, over the course of the project.
51. The draft South Metro Mississippi River Total Suspended Solids TMDL was sent to EPA for preliminary review and comment in late 2010. The draft was revised based on EPA comments received.
52. The public notice comment period for the draft South Metro Mississippi River Total Suspended Solids TMDL was February 27, 2012, to May 29, 2012. The draft South Metro Mississippi River Total Suspended Solids TMDL along with a fact sheet detailing the TMDL were posted on the MPCA website. A news release announcing the public notice comment period was also e-mailed to the list of known interested parties on February 27, 2012.
53. The MPCA received a total of six essentially identical petitions for a contested case hearing on the draft South Metro Mississippi River Total Suspended Solids TMDL from the Minnesota Soybean Growers Association (MSGA) and groups of residents, landowners and farmers. The petitions for contested case hearing are hereby incorporated by reference as Appendix A to these findings and hereinafter are referred to as the “MSGA Petitions.”
54. The MPCA received a petition for a contested case hearing on the draft South Metro Mississippi River Total Suspended Solids TMDL from the Lower Minnesota River Watershed District (LMRWD). The petition for contested case hearing is included in Appendix B and is hereby incorporated by reference to these findings and hereinafter is referred to as the “LMRWD Petition.”
55. The MPCA received a total of 20 petitions for a contested case hearing on the draft South Metro Mississippi River Total Suspended Solids TMDL containing similar or identical content as that provided by the Minnesota Cities Stormwater Coalition (MCSC), the city of Minneapolis, and 18 other entities (17 cities and the Minnesota Inter-County Association). The MCSC provided these 18 entities MCSC’s comments and petition for contested case hearings. The 18 entities submitted essentially identical comments to MPCA, as the comment letter and contested case hearing petition submitted by MCSC. The MPCA worked with the MCSC and the city of Minneapolis to address the concerns raised and MPCA revised the draft TMDL report. Both the city of Minneapolis and MCSC withdrew their petitions. MCSC subsequently sent the 18 entities e-mail messages (and follow-up e-mails) stating, in part, the following: “[*The MPCA*] gave *MCSC* a copy of the revised TMDL Report back in August 2014 and met with us to

discuss it. The MCSC Steering Committee found that the changes they had made to the TMDL Report made it appropriate for MCSC to withdraw our PCCH [petition for contested case hearing]. ... In light of the changes to the TMDL Report and MCSC's decision to withdraw our PCCH, we recommend that you send the MPCA staff a short E-mail withdrawing your PCCH." MPCA also sent e-mails to these entities requesting them to either withdraw their request for a contested case hearing or indicate that they were maintaining their request for a contested case hearing. As of October 5, 2015, 16 entities withdrew their petitions and no entities indicated that they were maintaining their hearing requests. The petitions for contested case hearing from the two remaining entities (cities of Monticello and St. Joseph) are hereby incorporated by reference as Appendix C and hereinafter are referred to as the "Monticello-St. Joseph Petitions."

56. The MPCA received a petition for a contested case hearing on the draft South Metro Mississippi River Total Suspended Solids TMDL from the Lake Pepin Legacy Alliance (LPLA). Concerns raised in that petition were addressed by the MPCA and LPLA subsequently withdrew its petition.
57. The MPCA received over 400 written submittals in the form of letters, e-mails and other formats providing comments on the draft South Metro Mississippi River Total Suspended Solids TMDL. The MPCA's *Response to Comments* document is hereby incorporated by reference as Appendix D to these findings.
58. The MPCA finds all petitions for contested case hearing were timely.

D. Petitions for a Contested Case Hearing

59. Minn. R. 7000.1800, subp. 2(A), Contested case petition contents, requires that a petition include:
 - (1) a statement of reasons or proposed findings supporting the board or commissioner decision to hold a contested case hearing pursuant to the criteria in Minn. R. 7000.1900, subpart 1; and
 - (2) a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested or resolution of the matter.
60. The MPCA's decision whether to grant the petitions for a contested case hearing is governed by Minn. R. 7000.1900, Criteria To Hold Contested Case Hearing, subp. 1, which states:

Subpart 1. Board or commissioner decision to hold Contested Case Hearing. The board or commissioner must grant the petition to hold a

contested case hearing or order upon its own motion that a contested case hearing be held if it finds that:

- A. there is a material issue of fact in dispute concerning the matter pending before the board or commissioner;
- B. the board or commissioner has the jurisdiction to make a determination on the disputed material issue of fact; and
- C. there is a reasonable basis underlying the disputed material issue of fact or facts such that the holding of a contested case hearing would allow the introduction of information that would aid the board or commissioner in resolving the disputed facts in making a final decision on the matter.

61. In order to satisfy the first requirement, Minn. R. 7000.1900, subp. 1(A), the petitioner must show there is a material issue of fact in dispute as opposed to a disputed issue of law or policy. A fact is material if its resolution will affect the outcome of a case. *O'Malley v. Ulland Brothers*, 540 N.W.2d 889, 892 (Minn. 1996).
62. In order to satisfy the second requirement, Minn. R. 7000.1900, subp. 1(B), the petitioner(s) must show that the MPCA has jurisdiction or authority to make a determination on the disputed issues of material fact. "Agencies are not permitted to act outside the jurisdictional boundaries of their enabling act." *Cable Communications Board v. Nor-West Cable*, 356 N.W.2d 658, 668 (Minn. 1984). Therefore, each issue in the contested case request has to be such that it is within the MPCA's authority to resolve.
63. Finally, under Minn. R. 7000.1900, subp. 1(C), the petitioner(s) has the burden of demonstrating there is a reasonable basis underlying the disputed material issue of fact or facts such that the holding of a contested case hearing would allow the introduction of information that would aid the MPCA in making a final decision on the matter. *In the Matter of Solid Waste Permit for the NSP Red Wing Ash Disposal Facility*, 421 N.W.2d 398, 404 (Minn. App. 1988). To do so, the petitioner(s) may provide the MPCA with specific expert's names, and with any indication of what specific new facts an expert might testify to at a contested case hearing. The Minnesota Supreme Court has recognized that to meet this test, "it is simply not enough to raise questions or pose alternatives without some showing that evidence can be produced which is contrary to the action proposed by the MPCA" (See *In the Matter of Amendment No. 4 to Air Emission Facility Permit*, 454 N.W.2d 427, 430 (Minn. 1990)).
64. All three criteria of Minn. R. 7000.1900, subp. 1 must be satisfied for the MPCA to grant a petition for a contested case hearing.

E. Evaluation of the MSGA Petitions for Contested Case Hearing “Matters of Concern” and “Issues To Be Addressed by Contested Case Hearing”

65. The MSGA petitions for a contested case hearing contained the following identical language of the “matter of concern” and “issues to be addressed by contested case hearing”:

a. Matters of Concern

“The undersigned petitioners find that the draft South Metro Total Suspended Solids TMDL report fails to properly account for and quantify “natural background” levels as required by the Minnesota Clean Water Legacy Act (CWLA)(MS 114D.15, subdivision 10); as well as, the Natural Water Quality section (7050.0170) of the MN Chapter 7050 rules. “Where background levels exceed applicable standards, the background levels may be used as the standards for controlling the addition of the same pollutants from point or nonpoint source discharges in place of the standards.”

The Minnesota CWLA (MS §114D.15, subdivision 10) states that *“Natural background” means characteristics of the water body resulting from the multiplicity of factors in nature, including climate and ecosystem dynamics, that affect the physical, chemical, or biological conditions in a water body, but does not include measurable and distinguishable pollution that is attributable to human activity or influence.*” In section 6.6 of the South Metro TMDL, a level of 10% of the existing TSS was used to represent natural background. A 10% number is invalid to use for several reasons. The 10% was based on estimated Lake Pepin sedimentation rates in 1830 compared to recent decades.

The 1830 point of reference clearly does not account for *climate and ecosystem dynamics*, as is required by the Minnesota CWLA. For example, there are different ecosystems present in the watersheds today compared to 1830 and there have been changes in climate (more rainfall in recent decades). There was no evidence provided in the TMDL that indicates sedimentation rates in Lake Pepin directly translate to the sediment load in the South Metro Mississippi River in recent times compared to the 1830 time frame. The Engstrom study that is being referenced also indicates that sedimentation rates in the early part of the 20th century were significantly less than the 1950 to 1980 time frame. However, McHenry and others (McHenry i.e., 1980, Water Resources

Bulletin 16) found that sedimentation rates had declined from the 1895-1954 time frame compared to post 1954. Dr Satish Gupta (Natural vs Anthropogenic Factors Affecting Sediment Production and Transport from the Minnesota River Basin to Lake Pepin, January 2011) in his report indicated that “sediment production in the Minnesota River Basin may not be drastically different now than before European settlement in 1850”. These major scientific discrepancies with the South Metro TMDL must be resolved. Other researchers have also shown significant differences with the Engstrom study.

A study done by Dr. Satish Gupta (Kessler, Gupta i.e., Journal of Environmental Quality, 2012) indicates that most of the sediment load from the Blue Earth River to the Minnesota River is from bluffs and banks. The Blue Earth River contributes about 50% of the TSS load to the Minnesota River. The processes responsible for this bluff and bank erosion are the same physical processes that have been occurring since the Minnesota River was formed, and therefore, are part of the natural background contributions. The MPCA made no attempt to divide the load allocation into subcomponents in the South Metro TMDL report. The report provided no measurable and distinguishable evidence that the non-point source load was anything other than natural background.

The South Metro Mississippi TSS TMDL study also fails to properly account for the components that contribute to turbidity. Dr. Robert Megard, MN River Turbidity Technical Advisory committee, raised the issue that the organic fraction of the TSS can be a much greater contributor to turbidity than the mineral fraction (May 1, 2009, U of Minnesota, Water Quality Seminar). A 2010 U.S. Geological Survey (USGS) technical Report on pools in the Upper Mississippi River showed that the volatile suspended solids (VSS) had substantially more impact on turbidity than non-volatile suspended solids (NVSS) (Giblin, USGS Technical Report 2010-TOO1). The VSS impact on turbidity was about 15 times greater than the NVSS on a weight basis. The VSS effect found in the USGS study is similar to what Megard determined for the South Metro stretch of the Mississippi.

Total suspended solids in the South Metro Mississippi River are dominated by the NVSS fraction; however, the VSS clearly dominates light penetration, and therefore, turbidity measurements. The South Metro Mississippi River TSS TMDL has failed to account for this important component of the TSS and the outcome is an erroneous load allocation, and therefore, implementation activities which will not be effective.

The petitioners ask that the MPCA properly determine the natural background levels of the load allocation, as well as determine load allocations that properly account for the impact of volatile suspended solids on the turbidity measurements. The petitioners also request the load allocations be determined using measurable and distinguishable evidence as is established in the Minnesota Clean Water Legacy Act.”

b. Issues to be addressed by contested case hearing

“The undersigned petitioners request the MPCA address the legal requirements of the South Metro Mississippi River Turbidity TMDL under the US Clean Water Act and the Minnesota Clean Water Legacy Act, including the load allocations, evaluation of natural background conditions and natural background standards.

Witnesses in this matter shall include the undersigned witnesses and other expert witnesses to be named later.

Publications, references and studies to be introduced include available data from US EPA Storet system, US EPA and MPCA Impaired Waters - TMDL protocols and various scientific studies and reports.

The undersigned petitioners estimate that it will require two full days to adequately address these matters.”

66. The MPCA evaluated the MSGA petitions for a contested case hearing to determine if the above stated “matters of concern” and “issues to be addressed” meet the three required criteria in Minn. R. 7000.1900, subp. 1. The MPCA sees two primary issues raised by the petitioners (labeled “Issue #1” and Issue #2) and addresses them separately in items a and b below. The petitions for a contested case hearing fail to satisfy the requirements of Minn. R. 7000.1900, subpart 1, for the following reasons:

a. ***MPCA response to MSGA petitioners’ Issue #1: The TMDL fails to properly account for and quantify natural background levels of TSS.***

1. MPCA finds the MSGA petitions fail criterion A because there is not a material issue of fact, but rather a disputed issue of law and/or policy:

- i. The basis for distinguishing nonpoint load considered to be natural background from nonpoint load derived from or influenced by human activity is a matter of law, specifically the Clean Water Act;

Minnesota Statutes, including Minn. Stat. §114D.15 subd. 10; and rules. *See* findings 24-27.

- ii. Natural background definitions cited in this Findings of Fact specifically exclude factors or sources related to human activity or influence.
 - iii. It has been and remains MPCA policy to interpret natural background definitions to exclude from natural background that load which is produced by a natural process but has been accelerated above and beyond natural background erosion rates due to human activity on the landscape.
 - iv. The effects human activity and influence has on the rate of erosion includes but is not limited to such things as the loss of wetlands, the installation of artificial surface and subsurface drainage systems (e.g., ditching, tile drainage), and land use and cover.
 - v. The erosion rate in many parts of the South Metro Mississippi River project area, which have undergone significant land use change since pre-settlement times, is occurring at an anthropogenically-accelerated rate.
 - vi. For purposes of clarification, if MPCA were to increase the proportion of natural background beyond the current percentage in the TMDL report this would mean that the agricultural sector would actually need to reduce a *greater* amount of load, not less. The reason for this is to make up for the increased natural background allocation (which has no associated reduction) in order to meet the overall allowable load, which would not change.
 - vii. The MPCA's determination of what constitutes natural background is a matter of MPCA policy and is rooted in law. As such, it is not a material issue of fact and not an appropriate basis for holding a contested case hearing.
2. MPCA finds the MSGA petitions fail criterion C because there is no reasonable basis underlying the disputed material issue of fact or facts such that the holding of a contested case hearing could allow the introduction of information that would aid the commissioner in resolving the disputed facts in making a final decision on the matter:

- i. The petitions appear limited to raising questions and fail to show evidence or demonstrate that evidence can be produced that is contrary to the action proposed by the MPCA. See *In the Matter of Amendment No. 4 to Air Emission Facility Permit*, 454 N.W.2d 427, 430 (Minn. 1990).
- ii. The information contained in the petitions and the articles referenced within them do not provide an alternative apportionment between natural and human-influenced loading. Further, the information contained in the petitions and the articles referenced within them also do not provide evidence contrary to MPCA's policy or the law the policy is based on (to consider the anthropologically-increased rate outside of the natural background load). As such, the introduction of the information and/or articles would not aid the commissioner in resolving the disputed facts to make a final decision on the matter.
- iii. Indeed, it is highly unlikely at best and petitioners have not produced information to show no or even minimal human influence on sediment loading of the Mississippi River given the extensive changes to much of the landscape in the drainage area.
 - (a) For much of the South Metro Mississippi River project area 90 percent or more of the native prairie and wetlands have been lost and converted to other land uses since pre-settlement times. Also, extensive installation of surface and subsurface drainage systems has occurred throughout the project area. These actions have significantly increased the frequency and magnitude of river flows, which in turn has increased bank and bluff erosion.
 - (b) Row crop agriculture is the predominant agricultural land use in the drainage area and is generally a system that leaves the soil with minimal protective cover for up to seven months out of a year.
 - (c) Therefore, it is not reasonable to conclude that information could be introduced concluding that sediment loading is predominantly, let alone entirely, natural background.
 - (d) The Petitions fail to produce information that would aid the commissioner that would show no or even minimal human influence on sediment loading of the Mississippi River given

the extensive changes to much of the landscape in the drainage area.

b. ***MPCA response to MSGA petitioners' Issue #2: The TMDL fails to properly account for the components that contribute to turbidity.***

1. MPCA finds the MSGA petitions fail criterion A because they fail to state a material issue of fact in dispute:

- i. As a point of clarification, the water quality standard used for this TMDL was not *turbidity*, a parameter measured by the amount of light that passes through the water. Rather, this TMDL was based on a site-specific standard for *total suspended solids (TSS)*, a parameter measured by the mass of solids in the water.
- ii. Allocations for South Metro Mississippi River Total Suspended Solids TMDL were written for the parameter TSS to meet the site-specific standard for TSS, as is required by U.S. EPA TMDL protocols and MPCA policy.
- iii. During the public comment period for the South Metro Mississippi River Total Suspended Solids TMDL the Minnesota Soybean Growers Association co-signed a separate comment letter that included the following comment commending the MPCA for using this site-specific TSS standard: *“The application of a concentration based standard is a new approach to protecting aquatic life. The target of 32 mg/L TSS (30 mg/L TSS with margin of safety) as a long term average to be attained in at least 5 years in a period of 10 years, with a secondary target of no single season average exceeding 44 mg/L TSS is far less ambiguous than the previous application of turbidity standards. We commend MPCA for taking this new approach, and encourage its application more broadly in addressing sedimentation of rivers.”*
- iv. Therefore, there is no material issue of fact in dispute related to turbidity as it was not the parameter used in the development of this TMDL.

2. MPCA finds the MSGA petitions fail criterion C because there is no material issue of fact in dispute and the holding of a contested case hearing would not aid the commissioner in making a final decision on the matter:

- i. MPCA finds no material issue of fact in dispute with respect to turbidity since that parameter was *not* used in the development of this TMDL. Rather, the parameter used in the development of the TMDL was TSS. Therefore, there is no introduction of information related to this issue that would aid the commissioner in making a final decision whether to approve this TMDL.
67. The MSGA petitioner fails to demonstrate that holding a contested case hearing would allow for the introduction of new information that would be helpful to the MPCA in reaching a decision in this matter.
68. In light of the above, MPCA finds there is no material issue of fact in dispute concerning the matter pending before the commissioner as required by Minn. R. 7000.1900, criterion A.
69. In light of the above, MPCA finds there is no reasonable basis underlying “the disputed material issue of fact or facts such that the holding of a contested case hearing could allow the introduction of information that would aid the board or commissioner in resolving the disputed facts in making a final decision on the matter” as required by Minn. R. 7000.1900, criterion C.
70. As part of the MSGA petitions, petitioners included Requests for Information from MPCA. The MPCA fulfilled the Requests for Information in June of 2012 and provided additional information in January 2013. There was no further contact from the petitioners since the MPCA’s response to their Requests for Information was sent.

F. Evaluation of the LMRWD Petition for Contested Case Hearing “Request for a Contested Case Hearing”

71. The LMRWD petition for a contested case hearing contained the following request for a contested case hearing”:
 - a. Request for a contested case hearing

“The District requests a contested case hearing on the following items to address issues of material fact with which we are in dispute:

 1. We find that the load allocations (LA) as set forth in Tables 6, 7 and 8 of the TMDL are inaccurate, misleading and subject to misinterpretation.
 - a. Inaccurate: The LA at all flow intervals is estimated as a residual: total monitored TSS load minus estimated point source loads. Overestimation of TSS loads from the 217 regulated MS4

communities in the TMDL, discussed in (2) below, results in an inflated value for the WLA and an underestimation of LA.

b. Misleading. Natural background is correctly estimated as 10 percent of the total TSS load across flow regimes. It is defined as part of the LA, and is so depicted in the TMDL. However, by depicting natural background as part of LA, it implies that natural background is being apportioned evenly between two of the main components of LA discussed on page 5 of this letter and on page 7 of the TMDL: field and non-field sources. In the Minnesota River Basin, which contributes three-fourths of the TSS load to the South Metro Mississippi River, 35 percent of the TSS load derives from field erosion and 65 percent from non-field sediment sources – stream banks, bluffs and ravines. Since fields and cities did not exist before 1830, the period when natural background was measured, it is a mistake to assume that one-tenth of field load consists of natural background. Natural background TSS should be applied entirely to non-field sources. Unless the LA is subdivided to include field and non-field sources in the Minnesota River basin, the anthropogenic component of TSS will be overestimated for field erosion and underestimated for non-field erosion.

Since the MPCA has at its disposal information that could be used to make the LA more precise, thereby avoiding the above problems, the District requests that a contested case hearing be held on this issue if the MPCA does not agree to make our recommended adjustments in its response to this comment letter. We intend to bring Dr. Daniel Engstrom, director, St. Croix Research Station, Science Museum of Minnesota, and Dr. Carrie Jennings, Minnesota Geological Survey, as witnesses to the hearing.

2. We find that the Waste Load Allocation (WLA) for MS4 communities is not supported by the July 2009 report to MPCA by Limno-Tech, Inc., “Upper Mississippi-Lake Pepin Water Quality Model: Development, Calibration and Application,” and that the requirement of a 25 percent TSS load reduction from a 2002 baseline is arbitrary and ineffectual. To repeat information from page four of this letter, the Limno-Tech report, drawing on information from a published study by the Metropolitan Council Environmental Services, estimates average annual TSS runoff in the Twin Cities Metropolitan Area to be approximately 50-66 pounds per acre. The MPCA ignored this information from the Limno-Tech memorandum and report, and instead used nation-wide data from a

compendium by the U.S. Army Corps of Engineers to derive an estimate of 225 pounds per acre TSS export from urban areas. The Limno-Tech report was intended to provide informational input for the TMDL. The MPCA did not explain in the TMDL its decision to reject its major contractor's urban runoff estimates, or why the national data it chose to use was more suitable than the localized estimates provided in the Limno-Tech report. The consequences of this decision by the MPCA are non-trivial to the TMDL and of great consequence to regulated MS4 communities. In essence, this decision has increased the proportion of the total TSS load that is comprised of MS4 runoff from less than one percent to almost six percent – a change from insignificant to minor significance.

We request that a contested case hearing be conducted to determine which of these estimates is the most accurate and appropriate for the TMDL, and whether MS4 loads are sufficiently important to warrant a 25 percent reduction from 2002 levels. As witnesses we intend to bring Steve Kloiber, Minnesota DNR, formerly of the Metropolitan Council and lead author of the article on runoff from different kinds of landscapes in the Twin Cities Metropolitan Area; and Dr. Joe De Pinto, lead scientist and manager on the TMDL modeling project.”

72. On August 18, 2014, MPCA staff e-mailed the LMRWD administrator providing a revised TMDL report and draft responses to comments and requested that the contested case hearing request be withdrawn. MPCA indicated its request was based on revisions made to the TMDL addressing some of LMRWD's major concerns and MPCA's judgment that further revision of the TMDL report would not achieve any real consequence in terms of cleaning up the river.
73. On October 22, 2014, LMRWD submitted letters to MPCA. These letters are hereby incorporated as part of Appendix B. Letters indicate the LMRWD is “satisfied with how the Agency chose to resolve issues that we and others raised regarding urban storm water runoff.” This is identified as issue #2 in LMRWD's April 27, 2012, petition. LMRWD further states that “it is no longer our intent to pursue a Contested Case Hearing (CCH) on this topic.” The letter then states that LMRWD will not withdraw its request for a contested case hearing with respect to Load Allocation (issue #1). Additional explanation of their position on issue #1 is provided.
74. On January 21, 2015, MPCA staff appeared before the LMRWD Board. MPCA staff responded to LMRWD October 2014 letters, expressing the following: 1) MPCA is not required by law to subdivide the load allocation, 2) the LMRWD letters did not specify or suggest how to reapportion the subcategories of the load allocation, 3) the letters included an attempt to divide up the current load, which is not the same as the allowable load, i.e., load allocation, and it appears the LMRWD did not do their current load calculations

correctly, and 4) the requested changes are very unlikely to make any actual difference in solving the pollution problem that they are concerned about. MPCA staff renewed the request for the LMRWD to withdraw their contested case hearing request. During the meeting the LMRWD Board expressed that their primary concern is about governance in the basin and commitment to address and fund needed sediment problems. The LMRWD Board also indicated at the meeting it would review the revised MPCA draft of the “Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River” in order to consider withdrawing their hearing request.

75. On May 21, 2015, LMRWD submitted a letter to MPCA. This letter is hereby incorporated as part of Appendix B. The letter stated in part that “the Board has decided that it will withdraw its [contested case hearing (CCH)] demand only on satisfaction of the following three conditions: (1) that it be allowed to withdraw the demand formally before the MPCA Board; (2) that it be allowed to address MPCA Board regarding its reasons for the CCH demand and its continuing concerns with the TMDL and implementation strategy; and (3) that it receive a public commitment from the MPCA Board that it will work with LMRWD Board to educate others (i.e. land owners, drainage authorities, watershed districts and management organizations, counties and municipalities) in the Minnesota River Basin about the impact of sediment delivery, the sources of sediment delivery and practices to reduce sediment delivery and erosion.”
76. On January 28, 2015, MPCA e-mailed the LMRWD administrator indicating that the MPCA will need more information regarding LMRWD’s proposed education effort in order to properly consider it. Several concerns and questions were raised over MPCA resource availability; redundancy with ongoing efforts by counties, state agencies (including existing MPCA efforts), University of Minnesota, federal offices and others; and potential achievability and effectiveness.
77. On June 16, 2015, MPCA e-mailed LMRWD administrator to inform LMRWD that the MPCA Citizens Board will be eliminated on July 1, 2015.
78. On July 2, 2015, LMRWD submitted a letter to MPCA indicating it is exploring a “basin management framework” and an educational framework, but did not respond to questions/concerns in January 28, 2015, MPCA e-mail. The letter states: “In response to your email, the Board has committed resources to develop an educational framework that will answer your questions. As you can imagine, this will take some time. As we work with our partners to develop a framework, we maintain our CCH demand.”
79. On July 16, 2015, MPCA sent a letter to LMRWD indicating the MPCA is no longer requesting LMRWD to withdraw their contested case hearing request and that instead MPCA intends to formally deny their request. The letter specifies that the remaining issue in dispute pertains to load allocation methodology (i.e., Issue #1) and MPCA denial will,

therefore, focus on that and the information LMRWD previously submitted in regards to that issue.

80. MPCA evaluated the LMRWD petition for a contested case hearing with respect to Issue #1 to determine if the above request meets the three required criteria in Minn. R. 7000.1900, subp. 1. The petition for a contested case hearing fails to satisfy the requirements of Minn. R. 7000.1900, subpart 1, for the following reasons:

a. ***MPCA response to LMRWD petitioner’s Issue #1: The load allocations as set forth in the TMDL tables are inaccurate, misleading and subject to misinterpretation.***

1. MPCA finds the LMRWD petition fails criterion A because there is not a material issue of fact:

- i. The petitioner’s claim labeled “a. Inaccurate” has been satisfactorily addressed. The basis for the purported inaccuracy was: “Overestimation of TSS loads from the 217 regulated MS4 communities in the TMDL, discussed in (2) below, results in an inflated value for the WLA.” However, the WLA and associated reduction requirements for MS4s have since been changed to the satisfaction of LMRWD. *See* finding 73.
- ii. The petitioner’s claim labeled “b. Misleading” makes statements that are not based in fact. It states: 1) “It [natural background] is defined as part of the LA, and is so depicted in the TMDL. However, by depicting natural background as part of LA, it implies that natural background is being apportioned evenly between two of the main components of LA discussed on page 5 of this letter and on page 7 of the TMDL: field and non-field sources.”, and 2) “...it is a mistake to assume that one-tenth of field load consists of natural background.” The TMDL includes tables which separately list natural background and the remainder of Load Allocation and no information in the TMDL report exists either stating or implying that “natural background is being apportioned evenly between ... field and non-field sources” nor “that one-tenth of field load consists of natural background.”
- iii. The MPCA has since added the following statement to the TMDL report section 6.2 (Load allocations and natural background): “Since cultivated fields and cities had not yet been established by European settlers before 1830, the period when natural background was measured, the allocation for natural background is attributable to non-field (or non-surficial) sources.”

- iv. The MPCA did not subdivide the Load Allocation category (that is separate from the natural background allocation) into field and non-field components. The decision to make this subdivision or not is a matter of policy that is fully consistent with applicable federal law, which has no such requirement that the Load Allocation be subdivided. *See* Finding #23.

81. In light of the above, MPCA finds there is no material issue of fact in dispute concerning the matter pending before the commissioner as required by Minn. R. 7000.1900, criterion A.

G. *Evaluation of the Monticello-St. Joseph Petitions for Contested Case Hearing*

82. The Monticello-St. Joseph petitions for a contested case hearing contained identical requests for a contested case hearing regarding two issues. These issues are numbered 4 and 13 in the text that follows below in this finding, which is entirely directly quoted from the petitions:

“4. TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target: The TMDL Report States that the TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target of 30 mg/L. The following text is from page 28 of the TMDL Report:

“the long-term TSS concentration is 24 mg/L in the Mississippi River at Anoka, compared to 20 mg/L 24 miles downstream at Lock & Dam 1, in the heart of the Twin Cities metropolitan area”

In fact, the flows in the Mississippi River above Lock & Dam 1 are improving the water quality, helping to attain and maintain the water quality standard, and are not contributing to the impairment (in a manner similar to the wastewater treatment plants that are discharging at concentrations less than 30 mg/L (see page 53 of the TMDL Report)).

Statement of Action #4

The WLA for MS4 stormwater sources should be revised to reflect the facts above. The form of these revisions requires discussion and negotiation among MPCA, USEPA, and the affected regulated stormwater sources. Options could include:

- Exclude the entire drainage area for the Mississippi River above Lock & Dam 1 from the TMDL study area
- Consider the permitted discharges from the regulated MS4 permittees above Lock & Dam 1 to be similar to the discharges from wastewater treatment facilities that are below the 30 mg/L target. Adopt TMDL language similar to

that on page 53 of the TMDL Report: *“Because this effluent concentration is less than the water quality standard of 32 mg/L, discharge from these facilities will remain below the water quality standard, thereby helping to attain and maintain the standard. For such facilities, which are listed in Appendix A, compliance with NPDES permits will be interpreted to constitute compliance with the TMDL.”*

- Eliminate the 25% load reduction for all permitted MS4s above Lock & Dam 1, in light of this fact and other reasons. This approach could be similar to the approach taken for the MS4 dischargers in the Upper Vermillion River in deciding not to impose load reductions on them as part of the Lower Vermillion River Turbidity (TSS) TMDL. This language is from page 7 of that report: *“No load reductions are necessary for the Upper Vermillion River, although the planned movement of the Empire wastewater treatment plant effluent to the Mississippi River is expected to have a beneficial impact on water quality within the LVR. Despite the fact that no load reductions are required for these sources, a load allocation for the Upper Vermillion River and wasteload allocations for its NPDES permitted municipalities (MS4s) were computed to meet the requirements of a comprehensive TMDL.”*

At a minimum, the MPCA should explain why, in light of these facts, the drainage area above Lock & Dam 1 should be included in this TMDL study area and/or why the permitted MS4s above Lock & Dam 1 should have a required load reduction.

Reasons or Proposed Findings #4

The facts supporting this comment are included in the TMDL Report. We recommend a detailed review and discussion with stakeholders of the research, studies, and reports that were executed or prepared in the course of developing this TMDL and the Lake Pepin model. Details from these materials would serve as the basis for a contested case hearing on this comment. Precedent is available in other TMDLs.

13. 25% MS4 load reduction is arbitrary and ineffectual: The 25% load reduction for all permitted MS4s in the entire TMDL study area appears to be arbitrary and ineffectual. This load reduction also serves as the basis for the target loading rates. This load reduction is not supported by scientific evidence or modeling results.

Statement of Action #13

Please reconsider whether the 25% loading reduction is warranted and/or sufficiently supported by scientific data or modeling results. Please conduct a contested case hearing to make this determination.

Reasons or Proposed Findings #13

The 25% load reduction was the subject of some discussion with MS4 stakeholders during the development of this TMDL. At that time, many elements of the TMDL Report were either not known or not conveyed to the municipal participants. These elements included:

- The immense estimated cost to achieve the WLA
- The load reductions for the MN River TMDL
- The fact that the TSS loading in the Mississippi River above Lock & Dam 1 met or exceeded the TMDL target loading of 30 mg/L.

These stakeholder conversations also included only a very small percentage of the cities included in the drainage area. The implications of the decision to impose a 25% load reduction on all the MS4s was poorly understood by the participants in the stakeholder process. In light of these facts, the stakeholder process used, in large part, to arrive at the 25% load reduction was fatally flawed.

Finally, page 82 of the TMDL Report includes the following text, in the context of considering contingency measures if load reduction milestones are not met in the future:

“Contingency requirements for this TMDL will not include ratcheting down further on point sources by reducing their waste load allocations, be they permitted MS4s or permitted wastewater treatment facilities. As this document attests, these are very minor sources of sediment to the South Metro Mississippi River, and further reducing their waste load allocations will not help to accomplish the goals of the TMDL in any measurable way.”

The TMDL Report states that the permitted MS4s are only *“very minor sources of sediment”*. Additionally, the Report states that reducing the load from the permitted MS4s *“will not help to accomplish the goals of the TMDL in any measurable way.”*

The stakeholder process was flawed. The science and the modeling in the TMDL do not support the load reduction. The load from the permitted MS4s is insignificant. Load reduction from the permitted MS4s will be ineffectual toward meeting the TMDL goals. The 25% load reduction for all permitted MS4s should not stand.”

83. MPCA evaluated the Monticello-St. Joseph petitions for a contested case hearing with respect to both Issues #4 and #13 immediately above to determine if the petitions meet the three required criteria in Minn. R. 7000.1900, subp. 1. The petition for a contested case hearing fails to satisfy the requirements of Minn. R. 7000.1900, subpart 1, for the following reasons:

a. ***MPCA response to the Monticello-St. Joseph petitioner's Issue #4: TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target and Issue #13: 25% MS4 load reduction is arbitrary and ineffectual.***

1. MPCA finds the Monticello-St. Joseph petitions fail criterion A because there is not a material issue of fact in dispute and fail criterion C as there is no basis to hold a contested case hearing because all of their issues have been addressed:

- i. The MPCA revised the TMDL report to address Issues #4 and #13 in a manner that directly considered the advice provided in the petition. Specifically, the 25 percent across-the-board pollutant reduction requirement for all MS4s was removed from the TMDL, the area upstream of Lock & Dam 1 except for the Crow River Watershed was assigned no load reduction, and information was added to the TMDL report to explain why the Crow River Watershed remained subject to a reduction. These actions are consistent with the relief sought in Issues #4 and #13. Further, because of their location within the Upper Mississippi River basin, Monticello and St. Joseph no longer require a reduction. Therefore, there is no material issue of fact in dispute per criterion A and there is no basis to hold a contested case hearing per criterion C.
- ii. The lead proponent for the requested changes, the MCSC, expressed its satisfaction to the MPCA with regard to resolution of these issues, withdrew their hearing request and encouraged and requested all entities who submitted identical comments to withdraw their hearing requests.

84. In light of the above, MPCA finds there is no material issue of fact in dispute concerning the matter pending before the commissioner as required by Minn. R. 7000.1900, criterion A and no basis to hold a contested case hearing per criterion C.

II. CONCLUSIONS OF LAW

1. Based on Minn. R. 7000.1900, the MPCA has jurisdiction to decide whether a contested case hearing should be granted or denied.
2. The requirements of Minn. R. 7000.1900 part A and C have not been met with respect to the issues raised by petitioners in the request for a contested case hearing and therefore, the petitions should be denied, based upon the reasons set forth in this document.
3. Due, adequate and timely public notice of the proposed draft South Metro Mississippi River Total Suspended Solids TMDL was given in accordance with Minn. R. 7001.0100, subps. 4 and 5.

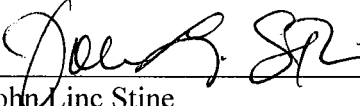
4. All petitions for a contested case hearing received were timely.
5. The 19 additional petitions for a contested case hearing were voluntarily withdrawn by the petitioners.
6. The MPCA determines the matter of concern and issues to be addressed by petitioners on the draft South Metro Mississippi River Total Suspended Solids TMDL do not meet the requirements for granting a contested case hearing because the petitions fail to meet the requirements of criteria A and C of Minn. R. 7000.1900.
7. Any findings that might properly be termed conclusions and any conclusions that might properly be termed findings are hereby adopted as such.
8. The Requests for Information included in the MSGA petitions for a contested case hearing were satisfied as of January 2013.

III. ORDER

The MSGA, LMRWD and Monticello-St. Joseph petitions for contested case hearing are hereby denied in their entirety.

The draft South Metro Mississippi River Total Suspended Solids TMDL shall be sent to U.S. EPA for approval.

IT IS SO ORDERED:



John Linc Stine
Commissioner
Minnesota Pollution Control Agency

11/6/2015

Date

Appendix A – MSGA Petitions for Contested Case Hearing

This appendix contains the following letters:

- Contested Case Hearing Request from the Minnesota Soybean Growers Association and signed by Kurt Krueger
- Contested Case Hearing Request from Duane Alberts and signed by Duane Alberts and Thomas Pyfferoen
- Contested Case Hearing Request from Greg Bartz and signed by Greg Bartz and 14 others
- Contested Case Hearing Request from the Brown County Corn and Soybean Growers Association and signed by six individuals
- Contested Case Hearing Request from Susan Commerford and signed by Susan Commerford and three others
- Contested Case Hearing Request from and signed by Anthony Hughes



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Mr. Robert Finley
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robert.finley@state.mn.us

May 26, 2012

RE: The South Metro Mississippi River Total Suspended Solids (TSS) TMDL Study.

Mr. Finley:

The undersigned petitioners include residents, landowners and farmers of the State of Minnesota. We support the long term objective of improving water quality, and are concerned that the proposed South Metro Turbidity TMDL fails to achieve this objective. Further, we are concerned that inadequate understanding of the cause and effect relationships between natural and man-induced water quality impacts will lead to misdirection of scarce resources. As local stakeholders, we have an interest in the protection and management of local soil and water resources.

Matters of Concern

The undersigned petitioners find that the draft South Metro Total Suspended Solids TMDL report fails to properly account for “natural background” levels as required by the Minnesota Clean Water Legacy Act (CWLA) (MS 114D.15, subdivision 10); as well as, the Natural Water Quality section (7050.0170) of the MN Chapter 7050 rules. “Where background levels exceed applicable standards, the background levels may be used as the standards for controlling the addition of the same pollutants from point or nonpoint source discharges in place of the standards.”

The Minnesota CWLA (MS 114D.15, subdivision 10) states that “*Natural background*” means characteristics of the water body resulting from the multiplicity of factors in nature, including

climate and ecosystem dynamics, that affect the physical, chemical, or biological conditions in a water body, but does not include measurable and distinguishable pollution that is attributable to human activity or influence.” In section 6.6 of the South Metro TMDL, a level of 10% of the existing TSS was used to represent natural background. A 10% number is invalid to use for several reasons. The 10% was based on estimated Lake Pepin sedimentation rates in 1830 compared to recent decades.

The 1830 point of reference clearly does not account for *climate and ecosystem dynamics*, as is required by the Minnesota CWLA. For example, there are different ecosystems present in the watersheds today compared to 1830 and there have been changes in climate (more rainfall in recent decades). There was no evidence provided in the TMDL that indicates sedimentation rates in Lake Pepin directly translate to the sediment load in the South Metro Mississippi River in recent times compared to the 1830 time frame. The Engstrom study that is being referenced also indicates that sedimentation rates in the early part of the 20th century were significantly less than the 1950 to 1980 time frame. However, McHenry and others (McHenry i.e., 1980, Water Resources Bulletin 16) found that sedimentation rates had declined from the 1895-1954 time frame compared to post 1954. Dr Satish Gupta (Natural vs Anthropogenic Factors Affecting Sediment Production and Transport from the Minnesota River Basin to Lake Pepin, January 2011) in his report indicated that “sediment production in the Minnesota River Basin may not be drastically different now than before European settlement in 1850”. These major scientific discrepancies with the South Metro TMDL must be resolved. Other researchers have also shown significant differences with the Engstrom study.

A study done by Dr. Satish Gupta (Kessler, Gupta i.e., Journal of Environmental Quality, 2012) indicates that most of the sediment load from the Blue Earth River to the Minnesota River is from bluffs and banks. The Blue Earth River contributes about 50% of the TSS load to the Minnesota River. The processes responsible for this bluff and bank erosion are the same physical processes that have been occurring since the Minnesota River was formed, and therefore, are part of the natural background contributions. The MPCA made no attempt to divide the load allocation into subcomponents in the South Metro TMDL report. The report provided no measurable and distinguishable evidence that the non-point source load was anything other than natural background.

The South Metro Mississippi TSS TMDL study also fails to properly account for the components that contribute to turbidity. Dr. Robert Megard, MN River Turbidity Technical Advisory committee, raised the issue that the organic fraction of the TSS can be a much greater contributor to turbidity than the mineral fraction (May 1, 2009, U of Minnesota, Water Quality Seminar). A 2010 U. S. Geological Survey (USGS) technical Report on pools in the Upper Mississippi River showed that the volatile suspended solids (VSS) had substantially more impact on turbidity than non-volatile suspended solids (NVSS) (Giblin, USGS Technical Report 2010-T001). The VSS impact on turbidity was about 15 times greater than the NVSS on a weight basis. The VSS effect

found in the USGS study is similar to what Megard determined for the South Metro stretch of the Mississippi.

Total suspended solids in the South Metro Mississippi River are dominated by the NVSS fraction; however, the VSS clearly dominates light penetration, and therefore, turbidity measurements. The South Metro Mississippi River TSS TMDL has failed to account for this important component of the TSS and the outcome is an erroneous load allocation, and therefore, implementation activities which will not be effective.

The petitioners ask that the MPCA properly determine the natural background levels of the load allocation, as well as determine load allocations that properly account for the impact of volatile suspended solids on the turbidity measurements. The petitioners also request the load allocations be determined using measurable and distinguishable evidence as is established in the Minnesota Clean Water Legacy Act.

Proposed Actions

The undersigned petitioners request that MPCA hold contested case hearing in this matter.

The MPCA must grant a party's petition to hold a contested case hearing if it finds that:

- A. There is a material issue of fact in dispute concerning the matter pending before the agency;
- B. The agency has the jurisdiction to make a determination on the disputed material issue of fact; and
- C. There is a reasonable basis underlying the disputed material issue of fact or fact such that the holding of a contested case hearing would allow the introduction of information that would aid the agency in resolving the disputed facts in making a final decision on the matter. Minn. R. 7000.1900, subpart 1.

Issues to be addressed by contested case hearing:

The undersigned petitioners request the MPCA address the legal requirements of the South Metro Mississippi River Turbidity TMDL under the US Clean Water Act and the Minnesota Clean Water Legacy Act, including the load allocations, evaluation of natural background conditions and natural background standards.

Witnesses in this matter shall include the undersigned witnesses and other expert witnesses to be named later.

Publications, references and studies to be introduced include available data from US EPA Storet system, US EPA and MPCA Impaired Waters - TMDL protocols and various scientific studies and reports.

The undersigned petitioners estimate that it will require two full days to adequately address these matters.

Request for information

In preparing for contested case, and pursuant to the Minnesota Government Data Practices Act (MS 13.01) the undersigned petitioners request MPCA provide an opportunity at the earliest convenient date to inspect and review the following data connected with the development of the South Metro Mississippi River Turbidity TMDL report.

1. All documents, final or drafts, regarding scope of work in preparing the South Metro Mississippi River Total Suspended Solids TMDL report.
2. All documents regarding the South Metro Mississippi River Total Suspended Solids TMDL report and work plan, including final and draft documents.
3. All technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols, including electronic data (i.e. spreadsheets and data stored in electronic media) compiled or used in the development the South Metro Mississippi River Total Suspended Solids TMDL report.
4. Software utilized to analyze electronic data, including any models used in the development of the load and waste load allocations for the South Metro software used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.
5. Any and all documents including staff memorandums, emails or other correspondence relating to the technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.

In accordance with Minn. Stat. 13.03, Subdivision 3, the petitioners further request that the MPCA designate one or more individuals to explain the meaning of all data that is produced.

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Kurt Kruger
President

Mr. Robert Finley
Regional Manager, Watersheds, MPCA
12 Civic Center Drive, Suite 2165
Mankato, MN 56001
FAX 507-389-5422
robert.finley@state.mn.us

May 26, 2012

RE: The South Metro Mississippi River Total Suspended Solids (TSS) TMDL Study.

Mr. Finley:

The undersigned petitioners include residents, landowners and farmers of the State of Minnesota. We support the long term objective of improving water quality, and are concerned that the proposed South Metro Turbidity TMDL fails to achieve this objective. Further, we are concerned that inadequate understanding of the cause and effect relationships between natural and man-induced water quality impacts will lead to misdirection of scarce resources. As local stakeholders, we have an interest in the protection and management of local soil and water resources.

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The undersigned petitioners find that the draft South Metro Total Suspended Solids TMDL report fails to properly account for "natural background" levels as required by the Minnesota Clean Water Legacy Act (CWLA) (MS 114D.15, subdivision 10); as well as, the Natural Water Quality section (7050.0170) of the MN Chapter 7050 rules. "Where background levels exceed applicable standards, the background levels may be used as the standards for controlling the addition of the same pollutants from point or nonpoint source discharges in place of the standards."

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Duane Alberts
26724 535th St.
Pine Island, MN 55963
507-356-4477

Thomas Pyffercoen
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Greg Bartz

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25455 State Highway 4
Sleepy Eye, MN 56085
(507) 794-7960

Joe Marti
23830 Cty Rd 12
New Ulm, MN 56073

Sam Hauke
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Eli Vogel
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Josh Schmid

Ronald Dettmer
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Sleepy Eye MN 56083

Robert Simon
22034 Cty Rd 29 S.E. MN. 56085

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33939 County Rd 10
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Signature *Donald Guelle*
 Name
 Address *31656 230th ST*
 Phone number *Sleepy Eye, MN*

HARLEY M. VOGEL
Harley M. Vogel
21538 Ke RD
Newholm MN 56073

MARY A. BARTZ
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Mr. Robert Finley
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Brown County Corn and Soybean Growers Association
 1901 Crestview Drive
 New Ulm, MN 56073

[Handwritten signatures]

Richard Wuntzberger 507 7246809
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3. All technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols, including electronic data (i.e. spreadsheets and data stored in electronic media) compiled or used in the development the South Metro Mississippi River Total Suspended Solids TMDL report.
4. Software utilized to analyze electronic data, including any models used in the development of the load and waste load allocations for the South Metro software used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.
5. Any and all documents including staff memorandums, emails or other correspondence relating to the technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.

In accordance with Minn. Stat. 13.03, Subdivision 3, the petitioners further request that the MPCA designate one or more individuals to explain the meaning of all data that is produced.

We respectfully request that the MPCA to provide the information herein requested at the earliest convenient opportunity. Please contact me at 507-359-4429 to make the necessary arrangements.

Susan Commerford
1901 Crestview Dr.
New Ulm, MN 56073

Susan Commerford
Randy Reinhart
Cody Reinhart
Dan Abel

Mr. Robert Finley
Regional Manager, Watersheds, MPCA
12 Civic Center Drive, Suite 2165
Mankato, MN 56001

robert.finley@state.mn.us

May 26, 2012

RE: The South Metro Mississippi River Total Suspended Solids (TSS) TMDL Study.

Mr. Finley:

The undersigned petitioners include residents, landowners and farmers of the State of Minnesota. We support the long term objective of improving water quality, and are concerned that the proposed South Metro Turbidity TMDL fails to achieve this objective. Further, we are concerned that inadequate understanding of the cause and effect relationships between natural and man-induced water quality impacts will lead to misdirection of scarce resources. As local stakeholders, we have an interest in the protection and management of local soil and water resources.

Matters of Concern

The undersigned petitioners find that the draft South Metro Total Suspended Solids TMDL report fails to properly account for "natural background" levels as required by the Minnesota Clean Water Legacy Act (CWLA) (MS 114D.15, subdivision 10); as well as, the Natural Water Quality section (7050.0170) of the MN Chapter 7050 rules. "Where background levels exceed applicable standards, the background levels may be used as the standards for controlling the addition of the same pollutants from point or nonpoint source discharges in place of the standards."

The Minnesota CWLA (MS 114D.15, subdivision 10) states that "*Natural background*' means characteristics of the water body resulting from the multiplicity of factors in nature, including climate and ecosystem dynamics, that affect the physical, chemical, or biological conditions in a water body, but does not include measurable and distinguishable pollution that is attributable to human activity or influence." In section 6.6 of the South Metro TMDL, a level of 10% of the existing TSS was used to represent natural background. A 10% number is invalid to use several reasons. The 10% was based on estimated Lake Pepin sedimentation rates in 1830 compared to recent decades.

The 1830 point of reference clearly does not account for *climate and ecosystem dynamics*, as is required by the Minnesota CWLA. For example, there are different ecosystems present in the watersheds today compared to 1830 and there have been changes in climate (more rainfall in recent decades). There was no evidence provided in the TMDL that indicates sedimentation rates in Lake Pepin directly translate to the sediment load in the South Metro Mississippi River in recent times compared to the 1830 time frame. The Engstrom study that is being referenced also indicates that sedimentation rates in the early part of the 20th century were significantly less than the 1950 to 1980 time frame. However, McHenry and others (McHenry i.e., 1980, Water Resources Bulletin 16) found that sedimentation rates had declined from the 1895-1954 time frame compared to post 1954. Dr Satish Gupta (Natural vs Anthropogenic Factors Affecting Sediment Production and Transport from the Minnesota River Basin to Lake Pepin, January 2011) in his report indicated that “sediment production in the Minnesota River Basin may not be drastically different now than before European settlement in 1850”. These major scientific discrepancies with the South Metro TMDL must be resolved. Other researchers have also shown significant differences with the Engstrom study.

A study done by Dr. Satish Gupta (Kessler, Gupta i.e., Journal of Environmental Quality, 2012) indicates that most of the sediment load from the Blue Earth River to the Minnesota River is from bluffs and banks. The Blue Earth contributes about 50% of the TSS load to the Minnesota River. The processes responsible for this bluff and bank erosion are the same physical processes that have been occurring since the Minnesota River was formed, and therefore, are part of the natural background contributions. The MPCA made no attempt to divide the load allocation into subcomponents in the South Metro TMDL report. The report provided no measurable and distinguishable evidence that the non-point source load was anything other than natural background.

The South Metro Mississippi TSS TMDL study also fails to properly account for the components that contribute to turbidity. Dr. Robert Megard, MN River Turbidity Technical Advisory committee, raised the issue that the organic fraction of the TSS can be a much greater contributor to turbidity than the mineral fraction (May 1, 2009, U of Minnesota, Water Quality Seminar). A 2010 U. S. Geological Survey (USGS) technical Report on pools in the Upper Mississippi River showed that the volatile suspended solids (VSS) had substantially more impact on turbidity than non-volatile suspended solids (NVSS) (Giblin, USGS Technical Report 2010-T001). The VSS impact on turbidity was about 15 times greater than the NVSS on a weight basis. The VSS effect found in the USGS study is similar to what Megard determined for the South Metro stretch of the Mississippi.

Total suspended solids in the South Metro Mississippi River are dominated by the NVSS fraction; however, the VSS clearly dominates light penetration, and therefore, turbidity measurements. The South Metro Mississippi River TSS TMDL has failed to account for this

important component of the TSS and the outcome is an erroneous load allocation, and therefore, implementation activities which will not be effective.

The petitioners ask that the MPCA properly determine the natural background levels of the load allocation, as well as, determine load allocations that properly account for the impact of volatile suspended solids on the turbidity measurements. The petitioners also request the load allocations be determined using measurable and distinguishable evidence as is established in the Minnesota Clean Water Legacy Act.

Proposed Actions

The undersigned petitioners request that MPCA hold contested case hearing in this matter.

The MPCA must grant a party's petition to hold a contested case hearing if it finds that:

- A. There is a material issue of fact in dispute concerning the matter pending before the agency;
- B. The agency has the jurisdiction to make a determination on the disputed material issue of fact; and
- C. There is a reasonable basis underlying the disputed material issue of fact or fact such that the holding of a contested case hearing would allow the introduction of information that would aid the agency in resolving the disputed facts in making a final decision on the matter. Minn. R. 7000.1900, subpart 1.

Issues to be addressed by contested case hearing:

The undersigned petitioners request the MPCA address the legal requirements of the South Metro Mississippi River Turbidity TMDL under the US Clean Water Act and the Minnesota Clean Water Legacy Act, including the load allocations, evaluation of natural background conditions and natural background standards.

Witnesses in this matter shall include the undersigned witnesses and other expert witnesses to be named later.

Publications, references and studies to be introduced include available data from US EPA Stret system, US EPA and MPCA Impaired Waters - TMDL protocols and various scientific studies and reports.

The undersigned petitioners estimate that it will require two full days to adequately address these matters.

Request for information

In preparing for contested case, and pursuant to the Minnesota Government Data Practices Act (MS 13.01) the undersigned petitioners request MPCA provide an opportunity at the earliest convenient date to inspect and review the following data connected with the development of the South Metro Mississippi River Turbidity TMDL report.

1. All documents, final or drafts, regarding scope of work in preparing the South Metro Mississippi River Total Suspended Solids TMDL report.
2. All documents regarding the South Metro Mississippi River Total Suspended Solids TMDL report and work plan, including final and draft documents.
3. All technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols, including electronic data (i.e. spreadsheets and data stored in electronic media) compiled or used in the development the South Metro Mississippi River Total Suspended Solids TMDL report.
4. Software utilized to analyze electronic data, including any models used in the development of the load and waste load allocations for the South Metro software used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.
5. Any and all documents including staff memorandums, emails or other correspondence relating to the technical, scientific, monitoring, laboratory testing data and Quality Control and Quality Assurance protocols used to develop the South Metro Mississippi River Total Suspended Solids TMDL report.

In accordance with Minn. Stat. 13.03, Subdivision 3, the petitioners further request that the MPCA designate one or more individuals to explain the meaning of all data that is produced.

We respectfully request that the MPCA to provide the information herein requested at the earliest convenient opportunity. Please contact me at (320-843-4501) to make the necessary arrangements.

Name ANTHONY HUGHES

Address 655 MONTANA AVE BENSON MN. 56215

Signature

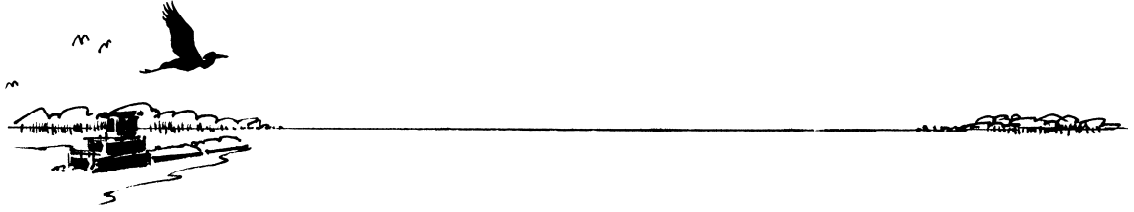
A handwritten signature in cursive script that reads "Anthony Hughes". The signature is written in black ink and is positioned to the right of the printed word "Signature".

Appendix B – Lower Minnesota River Watershed District (LMRWD) Petition for Contested Case Hearing and additional correspondence

This appendix contains the following letters:

- Contested Case Hearing Request from the Lower Minnesota River Watershed District
- Follow-up LMRWD Letter dated October 22, 2014 (transmittal letter)
- Follow-up LMRWD Letter dated October 22, 2014 (main letter)
- Follow-up LMRWD Letter dated May 21, 2015

Lower Minnesota River Watershed District



Len Kremer, Secretary
Hennepin County
Yvonne Shirk
Dakota County
Carla Shutrop, Vice President
Scott County

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Carver County
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April 27, 2012

Mr. Robert Finley
Southeast Regional Manager
Minnesota Pollution Control Agency
12 Civic Center Plaza, Suite 2165
Mankato, MN 56001

Dear Mr. Finley:

The Lower Minnesota River Watershed District appreciates the opportunity to comment on the South Metro Mississippi Total Suspended Solids Total Maximum Daily Load (TMDL). Because of our location and responsibilities, the District approaches this subject very seriously. The letter is organized in four parts: an introduction describing the District's location and responsibilities; impacts on District water and other natural resources from high flows and sediment loads from upstream; comments and recommendations on the TMDL report; and a request for a contested case hearing on two issues of material fact.

The District was established by petition from Hennepin, Ramsey, Dakota, Scott and Carver Counties in 1960 under the Minnesota Watersheds Act of 1955. The District encompasses an area of 80 square miles within a watershed extending from Fort Snelling at the mouth of the Minnesota River upstream to the town of Carver. The District includes five counties, 14 cities and two townships, all of which are designated as Municipal Separate Storm Sewer System (MS4) communities. It includes the Minnesota Valley National Wildlife Refuge – a floodplain ecosystem of lakes, wetlands and forest and a migratory flyway uniquely situated in the Twin Cities Metropolitan Area. The Mississippi National River and Recreation Area, besides including 72 miles of the Mississippi River, also extends up the Minnesota River to the Interstate 494 Bridge. Pike Island, at the confluence of the Minnesota and Mississippi Rivers, is an important spiritual site for the Mendota Mdwakanton Dakota community. Fort Snelling State Park, the historical site of our state's beginnings, also occupies the area near the confluence. County and city parks extend into the floodplain further upstream. All in all, there are 20,000 acres of parks and public open space in the District which are focused on the river, providing unique opportunities for rich encounters with nature for the 2.9 million residents of the Twin Cities Metropolitan Area.

Lower Minnesota River Watershed District

From its inception, the District has played a lead role in managing the storage and disposal of dredge materials associated with maintenance of a navigation channel in the lower Minnesota River by the U.S. Army Corps of Engineers. More recently, the District's role has expanded to include closer coordination with local governments within its boundaries on issues concerning water quality and protection of unique natural resources including six calcareous fens and six fishable trout streams. Joint resolutions with all local governments were completed in 2001. The District reviews local water management plans to facilitate inter-governmental coordination, collects and interprets data on water quality, biology and stream structure, develops and implements a Watershed District Management Plan, and initiates projects such as identification and stabilization of priority gullies.

Execution of the District's tasks and responsibilities is made difficult by the overwhelming influence of the Minnesota River as it discharges across the District's boundary near Carver. The river's flow and sediment load, in particular, have grown immensely since the early years of the District's history. Both have roughly doubled in magnitude since the 1940s, as indicated in the TMDL. The Minnesota Pollution Control Agency (MPCA) classified the lower Minnesota as impaired by turbidity, a condition highly correlated with suspended solids, in 1998. There are no significant actions that the District can take to address this problem unless serious measures are undertaken to reduce sediment loads and river flows from upstream that enter the district.

The Minnesota River within the District boundaries acts as a significant sediment sink. This has been verified by water quality monitoring data cited in a number of reports. Monitoring data for TSS loads at Jordan and Ft. Snelling on the MCES web site indicates the lower Minnesota River served as a sediment sink in two-thirds of the years from 1980 to 2010. Pages 28 and 30 the TMDL state that the long-term average TSS concentration declines from 141 mg/L at Jordan, just upstream of the District, to 112 mg/L at Fort Snelling, a 21 percent reduction. A 2004 study by the Metropolitan Council Environmental Services (MCES) found that an annual average of 425,000 metric tons of TSS are deposited in streams and floodplains within the Twin Cities Metropolitan Area, most of which originates upstream in the Minnesota River. A modeling study based on 2004-2006 monitoring data, conducted by the U.S. Army Corps of Engineers and sponsored by the MCES, confirmed the lower 40 miles of the Minnesota River to be a sediment and phosphorus sink.

In addition to the formal analyses just cited, recent high-water events have dumped several feet of sediment on the surface of floodplain forests in the Minnesota Valley National Wildlife Refuge. According to Refuge Manager Charles Blair, this will have a negative impact by destroying acres of mature silver maple, red maple, cottonwood, basswood and other species. Mr. Blair also notes that wetlands in the Refuge have been covered with one to two feet of river sediment, burying the native seed bank and introducing invasive species such as cocklebur from agricultural sediments. Reed canary grass is invading wetlands from the edges, crowding out bull rush and cattails. All of these impacts pose an imminent threat to the contiguity of floodplain forests, the survival of wetlands, and the utility of this ecosystem to migratory birds and other wildlife. Moreover -- Minnesota River mud closes trails, despoils recreational areas, and renders a unique urban ecosystem either inaccessible or undesirable for many of its users for much of the outdoor recreation season.

Lower Minnesota River Watershed District

These items identified are not normal functions of a floodplain, because it is not normal to have 10 times the historical load of total suspended solids (TSS) being carried along by the Minnesota River until it dumps about one third in the lower Minnesota floodplain and the remainder in Spring Lake and Lake Pepin. This is all documented in the TMDL. In addition, sediment deposition in the floodplain is reducing the conveyance capacity of the river which over time will increase flood levels and flood damage. These are significant impairments that need to be counted, along with the problem of turbidity, when calculating the damages incurred by Minnesota River sediment. Also, this is causing accelerated bluff collapse in Eden Prairie, endangering valuable homes. The average annual cost of dredging the navigation channel of the lower river and properly disposing of the sediment is about \$200,000, a small fraction of the total cost of extremely elevated levels of flow, erosion and siltation from the Minnesota River.

For several decades, the MPCA and sister state agencies have been ineffectual in their efforts to reduce sediment loads in the Minnesota River. The MPCA has clearly identified and quantified the problem numerous times – in basin plans from 1975 and 2001, the four-volume report of the Minnesota River Assessment Project in 1994, the Minnesota River Basin Information Document of 1997, plus numerous smaller studies and monitoring projects. In 1992, Governor Arne Carlson charged the MPCA with leading a multi-agency effort to make the Minnesota River “fishable and swimmable” in 10 years. In the 20 years that have since passed, no discernible progress has been made, according to the MPCA’s most recent biological assessment (*Revisiting the Minnesota River Assessment Project*, 2011). A likely reason for this failure is given in the concluding paragraph of the report: “...it should be noted that at this time BMP implementation is a voluntary process. Rates of BMP adoption are often low and not necessarily selected or placed in areas that will maximize the potential to achieve a desirable water quality result.” By contrast, phosphorus discharges from regulated wastewater treatment facilities in the Minnesota River basin have declined sharply over a similar period – 32 percent by 2001, and 50 percent by 2011 – meeting the WLA for the Lower Minnesota River Dissolved Oxygen TMDL several years ahead of schedule. This is the latest and perhaps clearest illustration of the successes possible under regulatory oversight, and the need for some degree of regulation to achieve real, sustainable progress in nonpoint source pollution reduction.

Comments on the TMDL

The District commends the MPCA for the transparency with which the TMDL study was conducted. We were represented at many, if not most, of the Stakeholder Advisory Committee meetings, and noted that all sectors had an opportunity to comment all the way through the study. Questions and comments were taken seriously, and MPCA staff treated everyone with consideration and respect. This must have been a challenging task at times, as certain representatives of agriculture, in particular, persisted in raising the same points repeatedly after most of the group was satisfied with the response the MPCA had provided. It became apparent that many from the agricultural sector were on a mission of denial and delay.

Lower Minnesota River Watershed District

The District strongly supports the science conducted under the supervision of the MPCA for the TMDL study. Especially from the standpoint of suspended sediment, the river model developed by Limno-Tech Inc. appears to handle sediment transport, deposition and resuspension over the 64-mile impaired reach with a high level of accuracy. The MPCA's careful development of a site-specific standard for TSS, as well as provision of an explicit margin of safety, gives us a high degree of confidence that TSS loading capacity has been accurately determined.

The sediment source studies sponsored by the MPCA provide convincing evidence of several key facts: a 10-fold increase in TSS load from pre-settlement times to present; a shift from field to non-field sediment in the post-World War II period; and altered hydrology as the main driver of increased non-field erosion from river banks, bluffs and ravines. We agree with the TMDL's assertion that artificial drainage and land cover changes after World War II are chiefly responsible for increased non-field loads. With the exception of the agricultural community there appears to be little if no support for the hypothesis advanced by some that increased precipitation is mainly responsible for increased sediment loads in recent decades.

However, there are important details in the TMDL with which the District is not in agreement. They are related to two major concerns: first, and most important, the waste load allocation (WLA) for MS4s lacks a sound basis in the TMDL modeling scenarios, is unfair, unreasonable and exposes MS4 permittees to unwarranted risks – besides contributing next to nothing to achieving water quality standards for the Mississippi River; second, that the load allocation (LA) fails to take full advantage of information generated by TMDL studies that should be used to provide more accurate LAs for natural background, field sources of sediment, and non-field sources of sediment. There also should be consideration given to what materials (i.e. salt, sand and/or gravel) are used on roads for snow and ice.

In addition to these points of fact, the District is very concerned that the TMDL will lead to no appreciable reductions in nonpoint source sediment, a continuation of the past 20-year record. We include several specific recommendations to increase the likelihood of progress in sediment load reductions, and request that the MPCA revise the TMDL to incorporate assurances that these recommendations will be carried out.

First, with regard to the aggregate WLA for MS4s, the requirement of a 25 percent reduction in TSS load at an estimated cost of \$850 million (TMDL, page 70) accomplishes almost nothing and is therefore ludicrous, unfair and an irresponsible waste of resources. Moreover, there appears to be considerable uncertainty regarding the estimate of urban runoff upon which the stormwater WLA is based. The District notes a wide discrepancy between sediment runoff coefficients used in the modeling report and the TMDL document. The Limno-Tech modeling report (page 62) cites research by Steve Kloiber, Metropolitan Council, which used detailed water quality monitoring and modeling to estimate TSS export from a 480,000-acre Twin Cities Metropolitan Area of 50 pounds per acre. A March 9, 2007 technical memorandum from Limno-Tech to the MPCA provides a similar estimate of 66 pounds per acre. These estimates, drawn from a local study published in a professional journal, *Water, Air and Soil Pollution* in 2006, is about one-fifth the average annual MS4 runoff coefficient of 225 pounds per acre used in the TMDL report (page 56). The latter value was based on nationwide estimates published by the

Lower Minnesota River Watershed District

U.S. Army Corps of Engineers. Had the local measurements cited in the Kloiber study been used in the TMDL, the total contribution of TSS from MS4s would have been less than one percent of the total load, vs. the 5.8 percent estimate cited in the TMDL (page 57).

Whichever estimate of MS4 runoff is used, the requirement of a 25 percent TSS load reduction seems arbitrary and capricious. Furthermore, given the current discussions regarding new reporting requirements from the Environmental Protection Agency, a 25 percent reduction requirement puts MS4s at considerable risk. According to the MPCA, EPA is now requiring that permitted MS4s incorporate quantified estimates of their portion of an aggregate WLA into their permit, provide a list of Best Management Practices which they believe will achieve the WLA, an end date by which the ultimate load reductions will be achieved, and interim measures of BMP progress, all of which will be subject to annual reviews by the MPCA. These provisions, which are being incorporated into a revised general permit for MS4s, would make the required 25 percent load reduction a highly irresponsible demand on municipalities. This is especially true given the gross scale of this TMDL, the wide range of possible TSS runoff coefficients cited in the previous paragraph and most especially in light of the strong possibility that nonpoint source loads will not be reduced at all, and may indeed increase in the near future.

The District recommends that one of the following policies be adopted by the MPCA and written into the TMDL document, in order to achieve some degree of balance:

1. The MPCA should use its regulatory discretion and coordinate its point and nonpoint source programs for the TMDL as follows. Established a firm date by which a 25 percent reduction in nonpoint source TSS loads must be achieved: for example, 10 years from the date of EPA approval of the TMDL. Establish a similar but later date by which MS4s will be required to initiate plans to achieve a 25 percent TSS load reduction: for example, 15 years following TMDL approval. This will require the agency to develop and document progress toward significant nonpoint source reductions, in order that its promised inter-agency evaluation of nonpoint source program effectiveness (TMDL, pages 70 and 83) will be informed by reliable data. This will also provide an occasion for evaluating the TMDL and the implementation approach as a whole in the context of adaptive management.
2. Eliminate the 25 percent TSS load reduction requirement for MS4s, replacing it with individual WLAs for each MS4 based on current estimated TSS runoff plus a 20 percent growth margin. In other words, treat MS4s the same as permitted wastewater treatment facilities, another class of insignificant dischargers of TSS.

Next, regarding the nonpoint source aspects of the TMDL, the District recommends establishing three components of LA for the Minnesota River basin and the Crow River watershed, based on MPCA-funded research on sediment sources by the St. Croix Watershed Research Station. These components are field sediment, non-field sediment and natural background sediment. For the Minnesota River, research based on radionuclide tracers indicates that at the present time, 35 percent of the total sediment load measured at Jordan originates from field sources, and the remaining 65 percent originates from non-field sources – erosion from river banks, bluffs or ravines. Sediment apportionment estimates vary from watershed to watershed within the Minnesota basin, but are

Lower Minnesota River Watershed District

sufficiently stable at the whole-basin scale to warrant their use in disaggregating the LA at this level of aggregation. The same kind of research indicates that in the Crow River watershed, 40 percent of the TSS load originates from fields, with 60 percent derived from stream banks, bluffs and ravines. We consider these data sufficiently robust to recommend their use in creating three LA categories for these watersheds.

The District agrees with the MPCA that 10 percent of the TSS load to the Mississippi River should be classified as natural background, a sub-category of the LA. We recommend that natural background be calculated as 10 percent of the total TSS load. This quantity should then be subtracted from the non-field part of the LA, based on the fact that in pre-settlement times all TSS originated from near-stream sources: ravines, bluffs and banks. Farm fields and cities did not exist. The District believes that these adjustments to the TMDL will improve its accuracy and help to clarify the role of natural background. These adjustments to the TMDL would make it clear that no part of field erosion can be considered to be natural background, but a significant portion of non-field erosion – more than 10 percent – can be defined as natural background. These adjustments would clarify which sediment sources are purely anthropogenic, hence subject to change, and which sources are not purely human-induced. Such knowledge will be of considerable use in developing implementation plans with specific targets and milestones for field and non-field erosion sources.

The TMDL document (page 83-84) lists several state statutes and rules which authorize state agencies and local government to exert regulatory control over nonpoint source pollution, including TSS. The District is disappointed that most of these provisions are being observed in the breach. We can only conclude that the state is not fully performing its duties under the law. This is likely an important reason why next to no progress has been made in nonpoint source pollution control in the Minnesota River basin, in particular.

As an example, the MPCA is authorized to classify excess stream flow as a pollutant under Minn. Stat. 115.01, Subd. 13, which provides a definition of pollution. The MPCA is required to implement anti-degradation rules (Minn. R. 7050.0185). The agency has cited both of these provisions in discussions with MS4 communities on the possibility of classifying excess flow as a pollutant. As a way of starting to implement such a policy where it would do the most good, we suggest that the MPCA begin by using stream flow as a surrogate for pollutants, especially TSS, in TMDL implementation plans. The University of Minnesota, under contract with the MPCA, has used regression analysis to determine the relationship between stream flow and sediment load in the Seven Mile Creek watershed. Sufficient data exist to conduct similar analyses for the main stem of the Minnesota River and certain points on streams within tributary watersheds. The magnitude of flow consistent with maximum allowable loads then could be determined as a basis for using flow as a surrogate for TSS load. This would help the MPCA and stakeholders to make a transition towards a more flow-based management protocol for TMDLs.

The District urges the MPCA to apply the above-mentioned authorities to nonpoint source pollution in other ways in the TMDL. In particular, erosion from ravines is frequently increased by channelized flow from agricultural fields that is augmented by artificial drainage. In some areas of high sediment

Lower Minnesota River Watershed District

delivery, tile lines discharge to the head of ravines, creating plunge pools that accelerate growth of ravines through head-cutting, in addition to scouring of the lower ravines far beyond what would occur under natural conditions. Field surveillance has found a majority of ravines in agricultural watersheds of the Minnesota River basin fit this description. The portion of the TSS load that is induced by such processes properly belongs in the WLA, as an additional point source category. MPCA can exercise its authorities through Minn. R. 7050.0210, Subp. 2, to require ravine erosion to be reduced according to Best Available Technology. As a complementary measure, Clean Water Legacy funds should be targeted to stabilize the highest-contributing ravines.

Finally, other state agencies and local governmental units are authorized to require vegetated 50-foot buffers along streams defined by the Department of Natural Resources as protected waters, as per Minn. Stat. 103F.201 and Minn. R. 6120.3300 sub. 7. The District expects the DNR and counties to demand compliance with state shoreland protection rules – in agricultural and urban areas. Further, the District encourages all drainage authorities, be they counties or watershed districts, to systematically implement redetermination of benefits under Minn. Stat. 103E.021 coincident with implementing improvements to drainage ditches to improve water quality – elimination of side inlets, re-sloping and re-vegetation of ditch banks, etc. The statute cited here requires the establishment of a permanent vegetated buffer 16.5 feet in width at the conclusion of such a process. Freeborn County recently completed a county-wide redetermination process which extended over two decades. We can think of no reason why all other drainage authorities should not be required to do the same.

The TMDL (page 81) calls for a Phase One goal of 25 percent reduction in TSS loads to the South Metro Mississippi River by 2020. The District suggests that the regulatory approaches outlined above, if systematically implemented, could go a long way toward accomplishing this interim target. Most of these authorities are listed in Section 7.5 of the TMDL as examples of “reasonable assurance” that nonpoint source allocations in the TMDL will be achieved. It is therefore reasonable for the District and other stakeholders to recommend the application of these existing authorities as part of the Phase One Plan to achieve a 25 percent reduction.

The District expects state government to begin exercising due diligence through systematic implementation of the TMDL, including the state statutes and rules listed in the TMDL. This needs to begin as soon as possible. As author of the TMDL, the MPCA is the most logical agency to take a leadership role in this initiative. A written commitment to do so, included in the TMDL document, can help to ensure that this process gets off the ground with enough momentum to overcome likely opposition from pollution sources which so far have been largely unregulated – agriculture, to be specific. At this time, agriculture is the only sector that treats pollution, rather than pollution control, as the cost of doing business – a cost incurred on those downstream. Unless significant changes occur in the agriculture sector, we will see no improvement in TSS load reductions and the TMDL will simply mark another failure in the decades-long attempt to restore the Minnesota and Mississippi Rivers through TSS load reductions.

Section 7 of the TMDL lays out a thorough framework and process for implementing the TMDL. It adapts procedures being developed for the Chesapeake Bay TMDL to our local circumstances; lists strategies and actions appropriate to various hydrologic scales; presents a logical outline for an

Lower Minnesota River Watershed District

implementation work plan; and properly cites the Clean Water Legacy Act as enjoining state agencies to use existing regulatory authorities for point and nonpoint sources where applicable. The District supports the approach outlined in Section 7, but remains unconvinced that it can be implemented under current governmental arrangements. Therefore we urge the MPCA to insert into the TMDL its intention to pursue with other state agencies and local governments the development of a coordinating structure to ensure that implementation plans, strategies and actions are carried out; that the status of BMP adoption and water quality is regularly measured, interpreted, and published; that the results are transmitted to an interagency body with authority to direct state agencies to adapt their plans and activities in response to information gathered and knowledge gained.

Request for a contested case hearing

The District requests a contested case hearing on the following items to address issues of material fact with which we are in dispute:

1. We find that the load allocations (LA) as set forth in Tables 6, 7 and 8 of the TMDL are inaccurate, misleading and subject to misinterpretation.
 - a. Inaccurate: The LA at all flow intervals is estimated as a residual: total monitored TSS load minus estimated point source loads. Over-estimation of TSS loads from the 217 regulated MS4 communities in the TMDL, discussed in (2) below, results in an inflated value for the WLA and an underestimation of LA.
 - b. Misleading. Natural background is correctly estimated as 10 percent of the total TSS load across flow regimes. It is defined as part of the LA, and is so depicted in the TMDL. However, by depicting natural background as part of LA, it implies that natural background is being apportioned evenly between two of the main components of LA discussed on page 5 of this letter and on page 7 of the TMDL: field and non-field sources. In the Minnesota River Basin, which contributes three-fourths of the TSS load to the South Metro Mississippi River, 35 percent of the TSS load derives from field erosion and 65 percent from non-field sediment sources – stream banks, bluffs and ravines. Since fields and cities did not exist before 1830, the period when natural background was measured, it is a mistake to assume that one-tenth of field load consists of natural background. Natural background TSS should be applied entirely to non-field sources. Unless the LA is subdivided to include field and non-field sources in the Minnesota River basin, the anthropogenic component of TSS will be overestimated for field erosion and underestimated for non-field erosion.

Since the MPCA has at its disposal information that could be used to make the LA more precise, thereby avoiding the above problems, the District requests that a contested case hearing be held on this issue if the MPCA does not agree to make our recommended adjustments in its response to this comment letter. We intend to bring Dr. Daniel Engstrom, director, St. Croix Research Station, Science Museum of Minnesota, and Dr. Carrie Jennings, Minnesota Geological Survey, as witnesses to the hearing.

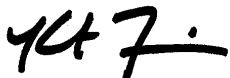
Lower Minnesota River Watershed District

2. We find that the Waste Load Allocation (WLA) for MS4 communities is not supported by the July 2009 report to MPCA by Limno-Tech, Inc., "Upper Mississippi-Lake Pepin Water Quality Model: Development, Calibration and Application," and that the requirement of a 25 percent TSS load reduction from a 2002 baseline is arbitrary and ineffectual. To repeat information from page four of this letter, the Limno-Tech report, drawing on information from a published study by the Metropolitan Council Environmental Services, estimates average annual TSS runoff in the Twin Cities Metropolitan Area to be approximately 50-66 pounds per acre. The MPCA ignored this information from the Limno-Tech memorandum and report, and instead used nation-wide data from a compendium by the U.S. Army Corps of Engineers to derive an estimate of 225 pounds per acre TSS export from urban areas. The Limno-Tech report was intended to provide informational input for the TMDL. The MPCA did not explain in the TMDL its decision to reject its major contractor's urban runoff estimates, or why the national data it chose to use was more suitable than the localized estimates provided in the Limno-Tech report. The consequences of this decision by the MPCA are non-trivial to the TMDL and of great consequence to regulated MS4 communities. In essence, this decision has increased the proportion of the total TSS load that is comprised of MS4 runoff from less than one percent to almost six percent – a change from insignificant to minor significance.

We request that a contested case hearing be conducted to determine which of these estimates is the most accurate and appropriate for the TMDL, and whether MS4 loads are sufficiently important to warrant a 25 percent reduction from 2002 levels. As witnesses we intend to bring Steve Kloiber, Minnesota DNR, formerly of the Metropolitan Council and lead author of the article on runoff from different kinds of landscapes in the Twin Cities Metropolitan Area; and Dr. Joe De Pinto, lead scientist and manager on the TMDL modeling project.

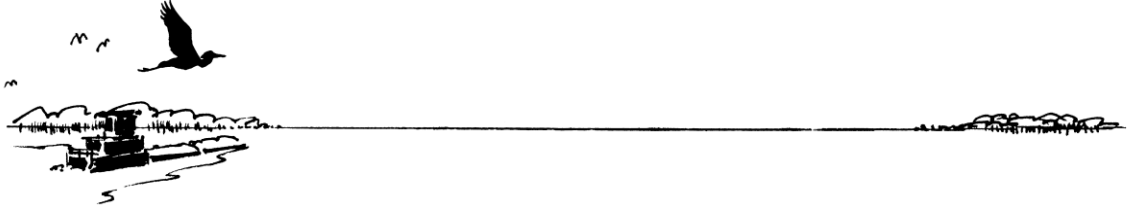
The Lower Minnesota River Watershed District is submitting these comments and requests in order to increase the likelihood that the South Metro Mississippi River TSS TMDL will be a catalyst for significant reductions in TSS loads and consequent improvements in water quality of the Minnesota and Mississippi Rivers. High-quality science has been conducted to develop this TMDL, and the implementation discussion is well developed. The District has much at stake in the success of this TMDL, and looks forward to working cooperatively with the MPCA and other state and federal agencies to ensure that scarce resources are directed toward the most cost-effective sediment-reduction solutions.

On behalf of managers of the Lower Minnesota Watershed District



Kent Francis, President

Lower Minnesota River Watershed District



Kent Francis, President
Carver County
Vacant, Manager
Scott County
Vacant, Manager
Hennepin County

Yvonne Shirk, Treasurer
Dakota County
Len Kremer, Secretary
Hennepin County
Linda Loomis, Administrator
Home/Office (763) 545-4659
Cell (612) 306-5802

October 22, 2014

Mr. Chris Zadak
Watershed Section
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155

Dear Mr. Zadak?

In August 2014, the MPCA provided the Lower Minnesota River Watershed District (LMRWD) with a revised South Metro Mississippi River Total Suspended Solids TMDL Study and requested the LMRWD withdraw its request for Contested Case Hearings (CCHs) in response to the South Metro Mississippi River Total Suspended Solids TMDL study.

The LMRWD has reviewed the revised TMDL study and determined the new document does not address its concerns surrounding the issue of Load Allocation. The LMRWD therefore will not withdraw its request for a CCH with respect to Load Allocation. Our reasons, for continuing with the request for a CCH, are explained in a letter attached that has been prepared by a consultant retained by the LMRWD to review the revised study and prepare a response in its behalf.

If you have any questions please respond to the Administrator for the LMRWD, Linda Loomis by phone at 763-545-4695 or by email at naiadconsulting@gmail.com.

Sincerely,

A handwritten signature in cursive script that reads "Linda Loomis".

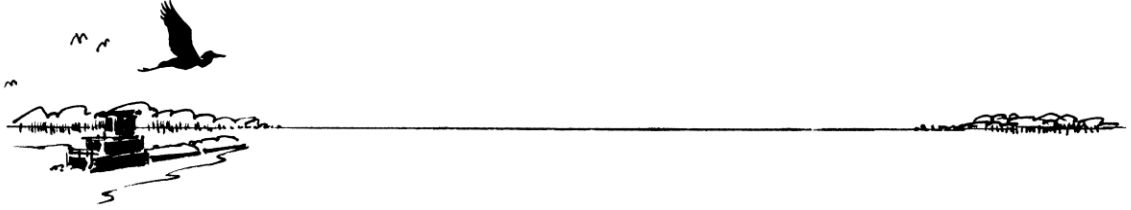
Linda Loomis
Administrator
Lower Minnesota River Watershed District

CC: Lower Minnesota River Watershed District Board of Managers
Mr. Norman Senjem

Lower Minnesota River Watershed District

Burns & McDonnell - Ms. Della Young
U.S. Army Corps of Engineers - Mr. Steven Tapp & Mr. Paul Machajewski
U.S. Geological Survey - Mr. James Fallon & Mr. Chris Ellison
U.S. Fish and Wildlife Services - Mr. Tim Bodeen
Metropolitan Council - Mr. Joe Mulcahy
Metropolitan Airport Commission - Mr. Roy Fuhrman
MN Board of Water and Soil Resources - Mr. Steve Christopher & Mr. Brad Wozney
MN Department of Transportation - Mr. Nick Tiedeken & Mr. Patrick Phenow
MN Department of Natural Resources - Mr. Mark Nemeth, Ms. Jennie Skancke & Ms. Kate Drewry
MN Department of Agriculture - Mr. David Fredrickson
MN Department of Health - Mr. Ed Ehlinger
Hennepin County Environmental Services - Mr. Randy Anhorn
Carver County - Mr. Mike Lein
Carver WMO - Mr. Paul Moline
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City of Mendota - KimberLee West
City of Mendota Heights - John Mazzitello
City of Minneapolis - Ms. Lois Eberhart
City of Savage - Mr. Sam Lucido
City of Shakopee - Mr. Bruce Loney
Jackson Township - Ms. Rose Menke
Louisville Township - Ms. Cheryl Doucette
Upper Mississippi Waterway Association - Mr. Greg Genz & Russ Eichman
Friends of the Mississippi - Mr. Whitney Clark & Mr. Trevor Russell
Lake Pepin Legacy Alliance - Mr. Michael McKay & Ms. Rylee Main
LMWRD Area State Senators and Representatives

Lower Minnesota River Watershed District



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October 22, 2014

Chris Zadak
Watershed Section
Minnesota Pollution Control Agency
520 Lafayette Rd. N.
St. Paul, MN 55155

Dear Mr. Zadak:

The Lower Minnesota River Watershed District is responsible for managing surface water runoff into the Minnesota River from 80 square miles of land on both sides of the river from the town of Carver to Ft. Snelling. The District is also responsible for maintaining a navigation channel in the lower Minnesota River and protecting unique natural resources. Execution of these tasks is made difficult by the overwhelming influence of the Minnesota River as it discharges across the District's boundary at Carver. The river's flow and sediment load have roughly doubled since the 1940s. In brief, the District has a huge stake in the successful implementation of the South Metro Mississippi TSS TMDL.

The District has received and reviewed the email and attachments the MPCA sent in response to our comment letter on the South Metro Mississippi River TSS TMDL. We are satisfied with how the Agency chose to resolve issues that we and others raised regarding urban storm water runoff. It is no longer our intent to pursue a Contested Case Hearing (CCH) on this topic. However, we decline to drop our request for a CCH on the second issue we raised concerning the load allocation.

Contested Case Hearing Request

In our 2012 comment letter, the LMRWD asked the MPCA to grant a CCH on the structure and content of the Load Allocation (LA) portion of the TMDL, which deals with nonpoint source sediment loads. We recommended the establishment of three components of the LA for the Minnesota River basin and Crow River watershed, where data are available to quantify them: natural background, upland runoff and near-channel erosion. In this letter, we will explain more fully our reasons for requesting this change to the TMDL, and propose an approach supported by data generated by MPCA-funded research.

According to Federal regulations, 40 CFR '130.2(g), LAs are best estimates of nonpoint source loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and

Lower Minnesota River Watershed District

appropriate techniques for predicting the loading. The determination of how allocations are distributed is at the discretion of the states. Several examples of multiple-component LAs developed in California and Pennsylvania are cited later.

Research Basis for Load Allocation

Research conducted for this TMDL has significantly changed what we know about sediment sources. Techniques including sediment fingerprinting and measurement of stream channel migration in the Minnesota River basin have shown that so-called near-channel sources (stream banks, bluffs and ravines) have generated most of the sediment loading to the river in recent decades, reversing the situation in the 1940's, when upland or field erosion provided the majority of sediment. This discovery, or confirmation of a hypothesis, has necessitated a new look at the problem of sediment pollution. More emphasis now is on hydrology-induced channel erosion than on runoff-induced upland erosion. This major shift in emphasis should be reflected in the heart of the TMDL – its allocation tables.

Another type of sediment research, some of it Agency-funded, shows that 10 percent of the total sediment load to the Mississippi River and Lake Pepin is natural background, as measured by interpretation of sediment cores from Lake Pepin. Analysis of sediment cores from Lake Pepin indicates that sediment deposition before European settlement (around 1830) was roughly one-tenth of the current rate of deposition. The South Metro Mississippi TSS TMDL provides supporting detail and arguments in favor of its conclusion that natural background comprises 10 percent of the current aggregate sediment load.

Research funded to support the TMDL shows how the total sediment load can be disaggregated into upland and near-channel categories at the river basin scale using radiometric tracers. For the Minnesota River basin, evidence indicates the sediment load in recent times consists of 35 percent upland runoff and 65 percent near-channel erosion, on average. This proportion is fairly stable at the scale of the river basin over several iterations of research, although considerable variation exists at smaller watershed scales. By contrast, in pre-settlement times, when farm fields and cities did not exist, all the sediment in the river could be said to originate from near-channel sources. Today's upland component of the sediment load consists of near-zero natural background, being near-100-percent of anthropogenic origin (Dan Engstrom, St. Croix Watershed Research Station, personal communication, Oct. 3, 2014).

Numerical Example

To illustrate how the District's recommended approach to the TMDL load allocation would play out in practice, let's run some numbers. Based on data from the USGS monitoring station at Jordan for 2000-2005, mean annual TSS load for the upstream basin is 809,499 tons. Of this, 65 percent or 526,174 tons represents near-channel erosion, and 35 percent or 283,325 tons represents upland erosion, based on recent sediment source studies by the St. Croix Watershed Research Station. Natural background comprises 10 percent of the total sediment load, or 80,950 tons. Since natural background is a component of near-channel erosion, subtracting this component leaves 445,224 tons per year as the controllable portion of near-channel erosion. Natural background comprises 15.34 percent of near-channel erosion, 10 percent of the total sediment load, and zero percent of upland erosion.

These numbers would translate into TMDL components as follows:

- **TSS Loading Capacity** for median flow is 50 percent of 809,499 tons, or 404,750 tons;
- **TSS Load Allocation** for nonpoint sources is divided into three parts:
 - Natural background is 10 percent of the total sediment load, or 80,950 tons.
 - This leaves 323,800 tons to divide between two anthropogenic sources:
 - Upland erosion, all of which is subject to human influence;
 - Near-channel erosion, 85 percent of which is subject to human influence.

Lower Minnesota River Watershed District

Original Intent of TMDL

With these kind of data in hand, the Agency, with stakeholder and expert input, could determine how much of controllable sediment load to allocate to upland erosion, and how much to near-channel erosion, based on cost, feasibility and so on. Deliberation over these choices should be at the heart of the TMDL. It was, indeed, foreseen as its main focus early in the TMDL development process. This is evidenced from presentations to the Stakeholder Advisory Committee (SAC) archived on the MPCA's web site. For example, in the presentation "Cost of Acceleration Options" at the Nov. 14, 2005 SAC meeting, one slide deals with the option, then under consideration, of "shortening" the TMDL by reporting nonpoint source TSS as a single entry in the load allocation rather than using multiple categories, as first envisioned. One bullet point noted that to do so would "limit the use of the TMDL as a guide to implementation," the very argument we are making. As later presentations showed, the SAC and MPCA continued to plan on multiple categories for the load allocation. For example, in August 2008 a presentation focused on four 'aggregate' allocations for nonpoint sources of sediment and phosphorus, as follows:

- Upland Runoff
- Non-CAFO feedlot runoff (for phosphorus)
- Near Channel Sources
- Natural Background

After the Agency separated the Lake Pepin TMDL into one for phosphorus and one for sediment, and went to work on the sediment TMDL first, the non-CAFO feedlot runoff category was abandoned.

The District believes that structuring the LA as we suggest is true to the intent of a TMDL, which is to build a framework for evaluating and solving a pollution problem comprehensively. This requires formulating and evaluating a range of load-reduction possibilities, and finally selecting a set of pollutant load allocations for major sources that do not exceed the total allowable load. The more that major pollutant sources are singled out and quantified, the more combinations of source reduction scenarios can be evaluated. The discipline of quantification imposed by the TMDL sets the stage for selection of a set of TSS source reductions as a comprehensive strategy for achieving each type of load allocation in the TMDL – so much near-channel sediment, and so much upland sediment. Without such discipline, implementation is likely to degenerate into more "random acts of conservation."

The Agency's initial plan to list two categories of nonpoint source TSS, and natural background, was a modest beginning toward treating the TMDL as a framework for comprehensive watershed management. This initial plan was not so much rejected as abandoned. Toward the latter phases of the TMDL, the Agency's main focus shifted to determining waste load allocations for hundreds of wastewater treatment facilities and Municipal Separate Storm Sewer System (MS4) communities, which together comprise an estimated 6 percent of total TSS load at median flow. Staff were more than fully occupied with a physically trivial, but legally important, and extremely detailed, component of the TSS load. With limited staff assigned to the TMDL project, there was no time to do justice to the development of separate upland and near-channel allocations, as had been originally intended (personal communication, Norman Senjem, Sept. 26, 2014). In requesting a CCH on the structure of load allocations in the TMDL, the District is simply asking the MPCA to revisit its original plan.

In its belated response to the LMRWD comment letter, the MPCA stated in #81 of the Response Document that "we disagree with the premise that further breakdown and fine-tuning of the LA will somehow lead to better implementation plans." Later in the same response, the MPCA suggested that, following the recommendations of the Sediment Reduction Strategy (SRS), watershed implementation plans can focus on reducing the frequency and duration of channel forming stream flows in order to reduce near-channel erosion. Such watershed plans at the 8-

Lower Minnesota River Watershed District

digit HUC and smaller, it implied, are the appropriate context for breaking down nonpoint source pollution into sub-categories, and targeting priority areas for implementing land use change. Elsewhere, in response #50, MPCA stated: “It is important to note that this TMDL is an overlay TMDL that provides loading targets for upstream watersheds. Turbidity TMDLs for upstream watersheds including the Cannon and Minnesota Rivers will examine more detailed source contributions and sinks within the local watersheds.”

The Question of Hydrologic Scale

A look at TMDLs completed to date indicates this statement is based more on hope than on reality. The Greater Blue Earth River Basin Turbidity TMDL, reporting on one of the most-studied watersheds of the state, declines to offer more than a single entry for nonpoint source sediment in the load allocations for each of the 39 individual sub-basin TMDLs the report includes. The report notes disagreement and controversy over the quantification of natural background and near-channel erosion, and limited research on the impaired reaches and their watersheds, as reasons to avoid quantification in its 39 TMDLs. The Lower Cannon River Turbidity TMDL implementation plan offers a similar explanation for not subdividing the load allocation for its several impaired reaches into sub-categories such a natural background, cropland erosion, steam bank and stream bed erosion, gully formation, etc., although it states that “ideally” this should be done.

Sub-division of nonpoint sources and geographic targeting is prescribed in the state’s latest approach to watershed planning – Watershed Restoration and Protection Strategies (WRAPS). As a recently completed WRAPS for the Snake River notes, “The Clean Water Legacy Act requires that the WRAPS report summarize priority areas for targeting actions to improve water quality, identify point sources and nonpoint sources with sufficient specificity to prioritize and geographically locate watershed restoration and protection actions.” The Snake River WRAPS has gone some way toward accomplishing this requirement using a battery of high-tech geospatial tools, deployed by a long list of government and non-profit organizations with a strong interest in the St. Croix River basin.

However, in the Minnesota River basin, the first WRAPS report to be published falls short of meeting the CWLA direction summarized above. The Pommès de Terre Watershed Strategy document limits itself to listing various Best Management Practice manuals, prioritization scoring techniques and broad restoration and protection strategies for the 16 impaired reaches it deals with, in the expectation that local groups will pick up the task and pinpoint priority areas and associated land-use strategies. This after seven years of study.

The TMDLs and WRAPS reports cited here raise serious questions about whether nonpoint source sediment will be “identified with sufficient specificity to prioritize and geographically locate watershed restoration and protection actions,” as the Clean Water Legacy Act requires. Well-funded watershed organizations, and those watersheds attracting significant outside attention and funding, may prove the exception. The rule, for counties and watershed organizations with limited staff and related resources, seems more likely to be represented by the examples cited for the Minnesota River basin. These examples suggest that if the South Metro Mississippi TMDL and Minnesota River Basin TMDL fail to subdivide the load allocation at a macro scale, smaller watersheds are unlikely to pick up the politically and technically daunting challenge to do so at the local level.

Examples from Other States

What the District is requesting is not unusual for state governments. Pennsylvania provides examples of small-watershed TMDLs where load allocation sub-categories for TSS were developed using a method called “Equal Marginal Percent Reduction”. This method equitably assigns the greater reduction requirements to the largest contributing source. The Wyomissing Creek Watershed Sediment TMDL, for example, divided the non-MS4 area of

Lower Minnesota River Watershed District

the watershed into six categories of LA, including cropland, hay and pasture, and stream bank erosion. Current loading estimates, allocated amounts and percent reductions are listed for each category. Another, the West Branch Mahantango Creek Watershed TMDL, lists allocations for similar activities and locations. For example, stream banks are estimated to contribute a current load of 547,400 tons per year, and receive a load allocation of 375,960 tons per year. In California, several TMDL reports list road-related mass wasting, road stream crossing failures and stream bank erosion. The Pahsimeroi River Sub-basin Assessment and TMDL covers an 840 square mile California watershed. The TMDL states: "Because the primary chronic source of sediment loading to the Pahsimeroi River is stream bank erosion, quantitative allocations have been developed." If the MPCA followed similar reasoning, particularly within the Minnesota River basin, the "primary chronic source of sediment loading" would be identified as near-channel erosion in the LA.

Implementation Considerations

With aggregate sediment budgets for upland erosion, near-channel erosion and natural background entered into the TMDL allocation tables, the South Metro Mississippi TSS TMDL could serve as a reference document for necessary large-scale implementation projects and activities which are beyond the scope of local watershed organizations. We offer several examples of activities which are more efficiently implemented at a large hydrologic scale. First, from the Sediment Reduction Strategy (SRS):

- Implement multi-purpose drainage via education/demonstration in multi-county area. Inform drainage authorities they are eligible for external funding for watershed-based planning.
- Fund projects to demonstrate how engineer's reports for drainage projects and repairs can evaluate impacts on wetlands, flow conditions and pollutant transport.
- Develop protocols for and conduct modeling to estimate water storage need in watersheds in order to achieve flow duration and magnitude goals.

Examples from Section 7 of the draft TMDL include:

- Conduct gap analysis of the adequacy of state's resources and programs for achieving needed land-use changes. Examine incentives, education and regulation.
- Develop data storage and retrieval system for inter-agency use to support adaptive management at the major watershed, basin and macro watershed scales.
- Provide technical assistance to help local watershed groups prioritize and target restoration and protection actions, as required by the Clean Water Legacy Act.
- Establish an inter-agency coordination mechanism to evaluate the cumulative effects of implementation efforts, and recommend changes as needed.

The District recognizes that requests for a contested case hearing should be concerned with matters of material fact. The structure of the load allocation, and the correct estimation of natural background, directly concern matters of material fact. As it stands, the current version of the TMDL is less specific than it could be regarding nonpoint sources of sediment, considering the empirical data at the Agency's disposal. Natural background is better described as a proportion of near-channel erosion than of the total sediment load. The load allocation structure we propose presents central facts of the TMDL in a manner that is more accurate and more helpful to implementation planning than the current version of the TMDL. We consider it a very modest request that the MPCA create three sub-divisions for nonpoint source sediment, based on data generated by Agency funded research.

Finally, we note with concern that the implementation section of the revised TMDL has been substantially changed. Most of the content regarding nonpoint source controls and strategies at the macro scale has been removed. In its place, the Agency has inserted an overview of the SRS. While the LMRWD supports the SRS, in its

Lower Minnesota River Watershed District

current form it serves as little more than broad, voluntary guidance for watershed implementation planning. Before supporting the TMDL, we need reassurance that the MPCA will undertake and fund the development of a macro-level implementation plan for this TMDL. Strategies for system-wide monitoring, evaluation of the adequacy of existing programs and funding levels, improved management of cropland drainage and a timetable for application of existing nonpoint source control authorities are among the matters that must be addressed.

We look forward to further discussion and resolution of these issues with the MPCA.

Submitted on behalf of the Managers of the Lower Minnesota River Watershed District:

Len Kremer, President

Yvonne Shirk, Vice President

Kent Francis, Secretary/Treasurer

Lower Minnesota River Watershed District



Vacant, Manager
Carver County
Len Kremer, President
Hennepin County
Vacant, Manager
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May 21, 2015

Chris Zadak
Watershed Section
Minnesota Pollution Control Agency
520 Lafayette Rd. N.
St. Paul, MN 55155

RE: South Metro Mississippi River Total Suspended Solids TMDL

Dear Mr. Zadak:

In January, 2015, you attended the Regular Meeting of the Board of Managers (Board) of the Lower Minnesota River Watershed District (LMRWD). At that meeting you presented information regarding the South Metro Mississippi Total Suspended Solids (TSS) Total Maximum Daily Load (TMDL) Study and implementation plan (the State's Sediment Reduction Strategy).

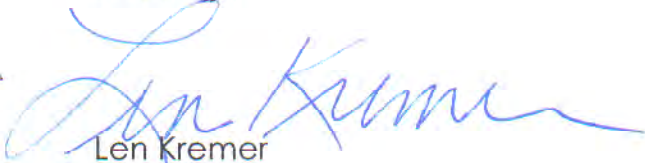
The Board expressed its continued concerns regarding the TMDL and its continuing demand for a Contested Case Hearing (CCH). You requested that the Board withdraw its CCH demand and threatened that the Minnesota Pollution Control Agency (MPCA) Commissioner would order dismissal of the demand.

After consideration, the Board has decided that it will withdraw its demand only on satisfaction of the following three conditions: (1) that it be allowed to withdraw the demand formally before the MPCA Board; (2) that it be allowed to address MPCA Board regarding its reasons for the CCH demand and its continuing concerns with the TMDL and implementation strategy; and (3) that it receive a public commitment from the MPCA Board that it will work with the LMRWD Board to educate others (i.e. landowners, drainage authorities, watershed districts and management organizations, counties and municipalities) in the Minnesota River Basin about the impact of sediment delivery, the sources of sediment delivery and practices to reduce sediment delivery and erosion.

Lower Minnesota River Watershed District

Please let us know when the LMRWD Board may be scheduled to address the MPCA Board. Until the three conditions set forth above are met, however, the LMRWD Board continues its demand for the CCH on the TMDL.

Sincerely,



Len Kremer
President

C: Lower Minnesota River Watershed District Board of Managers
Burns & MacDonnell - Ms. Della Young
Rinke Noonan - Mr. John Kolb
Mr. Ron Harnack
Mr. Norman Senjem
US Army Corps of Engineers - Mr. Steven Tapp & Paul Machajewski
US Geological Survey - Mr. James Fallon & Mr. Chris Ellison
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City of Lilydale - Mary Schultz, City Clerk
City of Mendota - KimberLee West, City Clerk
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Louisville Township - Ms. Cheryl Doucette, Town Clerk
Upper Mississippi Waterway Assn. - Mr. Greg Genz
LMRWD Area State Representatives and Senators

Appendix C – Monticello-St. Joseph Petitions for Contested Case Hearing

This appendix contains the following letters:

- Contested Case Hearing Request from the city of Monticello
- Contested Case Hearing Request from the city of St. Joseph



505 Walnut Street, Suite 1
Monticello, MN 55362

Draft South Metro Mississippi River Total Suspended Solids TMDL Report

The City of Monticello submits these Public Comments in response to the Minnesota Pollution Control Agency's (MPCA) Public Notice for the Draft South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load Report (TMDL Report).

Statement of Interest

The City of Monticello is in the drainage area for this TMDL and, thus, is directly affected by its findings.

Comments

1. **Fatal flaws:** This TMDL, through the linkage to the MS4 permits, creates immense new legal obligations and liabilities for regulated MS4 cities. The simplest example of this is the \$850 million cost estimate to achieve the MS4 WLA. These obligations and liabilities are not controllable by the MPCA. The MPCA has limited enforcement discretion under the Clean Water Act and State statutes and rules. Independent third parties are encouraged and empowered to act as private attorneys general to sue either the MPCA or the permitted parties to ensure compliance. There is a history of such suits under the TMDL and stormwater permitting programs in Minnesota and the United States.

The power to create such significant new legal obligations and liabilities should be exercised with restraint, responsibility, and based on rigorous science, research, modeling, and analysis. These standards have not been met by this TMDL study and report.

Statement of Action #1

This TMDL should be withdrawn and redone. The flaws listed below, along with others, should be addressed and corrected.

Reasons or Proposed Findings #1

A list of some of the flaws of this TMDL is provided in the comments below. They include:

- Inadequate consideration of the fact that the TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target of 30 mg/L.
- The boundaries for the areas served by the MS4 conveyance system are significantly inaccurate throughout the TMDL
- Insufficient consideration of factors related to the distribution of particle sizes in various sources of stormwater runoff
- Improperly not using the results of the Minnesota River Turbidity TMDL as an input boundary condition for this TMDL
- Improperly setting the MS4 WLAs according to flow conditions in the river
- Improperly setting the MS4 baseline year at 2002
- Not meeting the statutory requirement to provide cost estimates for the implementation of the TMDL (for all sources and sectors)
- Providing no model calibration or sensitivity analysis for urban discharges
- Improperly setting a 25% MS4 load reduction that is arbitrary and ineffective
- Not providing sufficient information or MPCA commitment to trading, including for MS4 permitted cities
- Not accounting for the water quality benefits of high-density development in the process of setting the MS4 WLAs
- Not providing for the deferral of the MS4 WLA load reductions until actual reductions from the large unregulated sources can be demonstrated and confirmed
- Insufficient consideration of the fact that most stormwater and stabilization BMPs (urban and non-urban) are effective under low and moderate flow conditions but are not effective under high and very high flow conditions
- Providing insufficient information about the cost estimate to achieve the MS4 WLA
- Improperly requiring an MS4 load reduction that is much smaller than the MOS for the TMDL, and thus within the margin of uncertainty for the study, modeling, and the TMDL.

Many of these items are significant flaws individually. Taken together, they make the TMDL fatally flawed. With these flaws taken into consideration, the MPCA cannot

say that the significant new legal obligations and liabilities created by this TMDL are the product of rigorous science, research, modeling, and analysis.

2. **Insufficient attention to urban discharges:** The development of this TMDL posed significant challenges for the MPCA. One of the fundamental conclusions of the TMDL is that the large majority of the load comes from non-urban sources. Based on conversations with MPCA staff and discussions at the public information meetings for this TMDL, it appears that the MPCA decided to focus the large majority of its resources to addressing issues and questions related to the loading from non-urban sources.

From one perspective, this seems like a sound decision. Unfortunately, this TMDL creates immense new legal obligations and liabilities for regulated MS4 cities. The decision to focus on the non-urban sources meant that scant attention and resources were given to the issues and questions related to the discharges from urban sources. The results of this fact can be seen throughout the comments listed below.

Statement of Action #2

This TMDL should be withdrawn and redone. Sufficient attention and resources should be given to the issues and questions related to urban discharges. A proper and sufficient stakeholder process should be conducted with all the MS4 cities in the drainage area. The problems enumerated in the comments below should be rectified and resolved.

Additionally, the MPCA TMDL program should work directly with the permitted MS4 cities to correct the problems in this TMDL and ensure that such flaws are not perpetuated in other TMDLS.

Reasons or Proposed Findings #2

The MPCA should not create new legal obligations or liabilities of this magnitude for the permitted MS4 cities without allocating sufficient and appropriate staff and funding resources to prepare this TMDL or any other TMDL with urban discharges in the drainage area.

3. **Flexible expression of the MS4 WLA:** The MPCA is to be commended for the manner in which the MS4 WLA is expressed in this TMDL. It is presented as numbers in metric tons per year for average flow conditions, and in metric tons per year and kilograms per day for the five flow conditions. The MS4 WLA is also expressed as a 25% reduction. Finally, it is also expressed as target loads for built-up areas (169 lbs/acre/year), newly developed areas, and open-space developed areas (112.5 lbs/acre/year). These multiple expressions of the MS4 WLA allow for appropriate flexibility for MS4s in designing and implementing urban stormwater management programs to meet the MS4 WLA for this TMDL.
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4. **TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target:** The TMDL Report States that the TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target of 30 mg/L. The following text is from page 28 of the TMDL Report:

“the long-term TSS concentration is 24 mg/L in the Mississippi River at Anoka, compared to 20 mg/L 24 miles downstream at Lock & Dam 1, in the heart of the Twin Cities metropolitan area”

In fact, the flows in the Mississippi River above Lock & Dam 1 are improving the water quality, helping to attain and maintain the water quality standard, and are not contributing to the impairment (in a manner similar to the wastewater treatment plants that are discharging at concentrations less than 30 mg/L (see page 53 of the TMDL Report)).

Statement of Action #4

The WLA for MS4 stormwater sources should be revised to reflect the facts above. The form of these revisions requires discussion and negotiation among MPCA, USEPA, and the affected regulated stormwater sources. Options could include:

- Exclude the entire drainage area for the Mississippi River above Lock & Dam 1 from the TMDL study area
- Consider the permitted discharges from the regulated MS4 permittees above Lock & Dam 1 to be similar to the discharges from wastewater treatment facilities that are below the 30 mg/L target. Adopt TMDL language similar to that on page 53 of the TMDL Report: *“Because this effluent concentration is less than the water quality standard of 32 mg/L, discharge from these facilities will remain below the water quality standard, thereby helping to attain and maintain the standard. For such facilities, which are listed in Appendix A,*

compliance with NPDES permits will be interpreted to constitute compliance with the TMDL”.

- Eliminate the 25% load reduction for all permitted MS4s above Lock & Dam 1, in light of this fact and other reasons. This approach could be similar to the approach taken for the MS4 dischargers in the Upper Vermillion River in deciding not to impose load reductions on them as part of the Lower Vermillion River Turbidity (TSS) TMDL. This language is from page 7 of that report: *“No load reductions are necessary for the Upper Vermillion River, although the planned movement of the Empire wastewater treatment plant effluent to the Mississippi River is expected to have a beneficial impact on water quality within the LVR. Despite the fact that no load reductions are required for these sources, a load allocation for the Upper Vermillion River and wasteload allocations for its NPDES permitted municipalities (MS4s) were computed to meet the requirements of a comprehensive TMDL.”*

At a minimum, the MPCA should explain why, in light of these facts, the drainage area above Lock & Dam 1 should be included in this TMDL study area and/or why the permitted MS4s above Lock & Dam 1 should have a required load reduction.

Reasons or Proposed Findings #4

The facts supporting this comment are included in the TMDL Report. We recommend a detailed review and discussion with stakeholders of the research, studies, and reports that were executed or prepared in the course of developing this TMDL and the Lake Pepin model. Details from these materials would serve as the basis for a contested case hearing on this comment. Precedent is available in other TMDLs.

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5. **Incorrect boundaries for MS4 cities:** The boundaries and land areas for the permitted MS4 cities used in this TMDL study are incorrect and significantly flawed. The TMDL Report is based on the 2002 National Land Cover Data (NLCD). Please see this excerpt from page 56 of the TMDL Report:

“To calculate the wastewater waste load allocation for regulated MS4 stormwater, the MPCA estimated loads using 2002 National Land Cover Data (NLCD) and TSS export coefficients for the NLCD land use classifications. The NLCD includes four developed land uses. These were assumed to represent urban land use. The four classes are based on ranges of impervious cover, as indicated below.

Using a Geographic Information System (GIS), NLCD developed land uses were clipped using the regulated MS4 boundaries. The following acreages were determined for the South Metro Mississippi watershed:

- Developed, low intensity (20 to 49 percent impervious) – 248,750 acres;*
- Developed, medium intensity (50 to 79 percent impervious) – 140,000 acres;*
- Developed, high density (more than 79 percent impervious) – 65,750 acres; and*
- Developed, open space (less than 20 percent impervious) – 154,600 acres.”*

Statement of Action #5

The TMDL should be revised using the accurate boundaries for the permitted areas within MS4 cities. The modeling should be revised using these boundaries. These boundaries can be provided by the cities. The boundaries for the MS4 WLA should be set to include only the land areas covered by the MS4 permit. The modeling should be redone based on these corrected MS4 boundaries.

Reasons or Proposed Findings #5

The boundaries for the permitted cities are flawed in at least three significant ways:

- The outside boundaries of the areas covered under the MS4 permit are not accurate. These outside boundaries are determined by the land areas served by the cities' MS4 conveyance systems. The cities have these areas mapped, but the MPCA never requested this information in the course of preparing the TMDL. The NLCD does not include any information about the extent of the land areas served by any of the MS4 cities' conveyance systems. The actual boundaries of the land areas served by the conveyance system and, therefore, covered under the MS4 permit were not used in the course of developing the TMDL or any of the underlying models. Only the permitted areas of the MS4 cities should be included in the WLA.
- Some of the cities in the drainage area for this TMDL have significant land areas within their boundaries that have never discharged urban stormwater outside the city boundaries or to the Mississippi River or its tributaries. In some cases, these landlocked areas constitute one-third or one-half of the land area served by the cities' MS4 conveyance systems. The land areas used to develop the TMDL and the underlying models did not include this information and are, therefore, significantly inaccurate. The MPCA never requested this information from any of the permitted cities in the drainage area.
- There are portions of every permitted MS4 city that drain overland (sheet flow) directly to receiving waters without passing through the cities' MS4

conveyance systems. Depending on the density and types of receiving waters in each city, this land area can be as much as 30% of the land area within the outside boundary of a city's MS4 conveyance system. The loading from this type of land, immediately adjacent to receiving waters, corresponds to near-channel loading that was found to be a very significant type of contribution to the loading for the Minnesota River. The land areas used to develop the TMDL and the underlying models did not include this information and are, therefore, significantly inaccurate. The MPCA never requested this information from any of the permitted cities in the drainage area.

Taken together, these flaws mean that the land areas for the permitted MS4 cities used to develop the TMDL and the underlying models were significantly inaccurate. This means that the WLA for the permitted cities is inaccurate. Establishing the correct boundaries is one of the most fundamental starting points for any water quality modeling project. The fact that the MS4 cities' boundaries are significantly inaccurate in this TMDL study is unacceptable and inexcusable.

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6. **Variations in particle size distributions:** Information about variation in the distribution of particle sizes in runoff from various sources is missing from this TMDL. Information about the relationship between the particle size distribution of runoff and the resulting turbidity in the receiving waters is also missing. Without addressing these factors, the MS4 WLA cannot be accurate.

Statement of Action #6

Please revise the TMDL study to include information about the distribution of particle sizes in runoff from various sources. Revise the TMDL to address issues related to the relationship between particle sizes and turbidity. Address the differences in the particle size distributions between urban stormwater discharges and discharges from non-urban sources. Address these differences and relationships in the modeling for the TMDL. Revise the load allocations with particle size distributions included as factors.

Reasons or Proposed Findings #6

It is widely recognized that the sizes of particles is a significant factor in the relationship between TSS loading and turbidity in receiving waters. Smaller particles more greatly influence higher turbidity. It is also widely recognized that there are significant differences between the particle size distributions for urban runoff

compared to non-urban runoff. Without addressing these factors, the MS4 WLA cannot be accurate. Saint Anthony Falls Laboratory, of the University of Minnesota, is a source of excellent information and research on these subjects.

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7. **MN River TMDL loading should be an input boundary condition:** This TMDL should be revised to include the results from the Minnesota River Turbidity TMDL as an input boundary condition. As written, the loading from the Minnesota River Basin in the modeling that supports the final allocations does not match the loading targets for the basin in the Minnesota River Turbidity TMDL.

Statement of Action #7

Revise the TMDL to include the results from the Minnesota River Turbidity TMDL as an input boundary condition. Revise the underlying models and revise all the allocations accordingly. The Minnesota River modeling Scenario 5 should be linked to the South Metro Mississippi modeling system (instead of Scenario 4, see page 45) and the new model results should serve as the basis for a new set of allocations for this TMDL. The same action should be taken for the Cannon River Basin and Vermillion River Basin, based on the text on page 47 of the TMDL Report.

Reasons or Proposed Findings #7

The study area for the Minnesota River Turbidity TMDL matches the Minnesota River Basin included in this TMDL. The results of the MN River TMDL should be used as input for this TMDL. This is customary practice for “nested” TMDLs. It was clearly the intent described on page 45 of the TMDL Report, but the wrong scenario was used. Scenario 5 from the MN River TMDL should be used because it is the basis for the allocations in the MN River TMDL. Without this revision, all the allocations in this TMDL are incorrect. The load reduction in the MN River TMDL is 90%. The load reduction for the MN River Basin in this TMDL Report is 50% to 60%. There is a significant difference between these two load reductions.

The same reasons or proposed findings apply to Cannon River Basin and Vermillion River Basin, based on the text on page 47 of the TMDL Report.

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8. **Setting MS4 WLAs in relationship to flow conditions:** There are multiple questions regarding the appropriateness of determining and setting the MS4 WLAs according to five flow conditions. These include, but are not limited to :

- There is relatively little correlation between the TSS loading in urban discharges and the flow condition in the river. In a river system the size of the Mississippi River, the flow conditions are frequently determined by large-scale rain events over large land areas and long durations of time. TSS loading accumulates on urban impervious surfaces at a fairly constant rate over time. This load is then washed off and discharged to the receiving water during intense rain events. These rain events can be short, localized events that have minimal effect on the flow in the river but result in significant TSS loading from the urban land. In the event of a heavy, long-duration rain event, the loading in the urban discharge is typically much greater early in the event than later in the event. The amount of time between intense rain events is more important than the size or duration of each event. The large portion of impervious surfaces serves to armor the surface from the impact of raindrops, thus making the loading in the urban discharges much different from the loading in non-urban settings with low percentages of impervious surfaces. The timing and amount of TSS loading from urban land behaves in very different ways than TSS loading from non-urban land.
- TSS loading from urban land during snowmelt and floods is very different from the loading from non-urban land. Cities have addressed flood control in their jurisdictions for many years. They commonly have significant flood control structures and BMPs in place within their jurisdictions. Many of these structures impound water, thus changing the flow regime and settling out significant amounts of solids. The armoring of urban surfaces also results in loading during the large rain events that may cause floods to be much different from the loading for non-urban land. The saturation of the soils is much less a factor in urban settings. Floods and snowmelt are conditions that result in a significant portion of the total TSS loading to the river system.
- In a river system the size of the Mississippi River, the flow condition in the river will frequently be determined by a rain or snowmelt event that has occurred far upstream of a given MS4 city. In that circumstance, the city could have little loading in its discharge during a flow condition when a larger loading would be allowed under the MS4 WLA. Conversely, a city can have an intense localized rain event that causes heavy loading in its discharge but does not change a low flow condition in the river. This could be viewed as a violation of the MS4 WLA that is set according to low flow conditions.

There is no indication that these factors were considered in the process of setting the MS4 WLAs according to the flow conditions in the river.

Statement of Action #8

If these factors and other related factors were considered in the course of developing the TMDL model and allocations, please provide a complete explanation in the TMDL Report. If they were not, please revise the TMDL methodology, model, and allocations to address these factors. Please evaluate and reconsider whether the MS4 WLAs should be expressed in relationship with the flow conditions in the river. If it is determined that this approach is poorly supported, please revise the methodology, modeling, and/or allocations appropriately.

Reasons or Proposed Findings #8

There are significant and multiple differences between TSS loadings in urban and non-urban settings. There are very different relationships between rainfall, snowmelt, and TSS loadings in urban and non-urban settings. If these differences were addressed in deciding to link the MS4 WLAs to the flow conditions in the river, a complete and comprehensive explanation is needed in the TMDL Report. If these differences were not addressed and the linkage between the MS4 WLAs and the river flow conditions is not appropriate, the MS4 WLA are expressed inappropriately and the TMDL is setting the MS4 cities up for failure and violations.

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9. **Baseline set at no BMPs:** The baseline for the MS4 WLAs for this TMDL should be set with no BMPs in place at all. The baseline condition should not be set based on the year of the 86th percentile flow condition.

Statement of Action #9

Please revise the baseline for the MS4 WLAs as the condition with no BMPs in place. Please disconnect the baseline from a specific year.

Reasons or Proposed Findings #9

The HSPF model, as described in the TMDL Report, did not include BMPs for the land use inputs. As listed on page 56 of the TMDL Report, the model used NCLD developed land uses. It appears that there were only four types of land uses included. They were differentiated only by the percentage of impervious area. They were:

*"Developed, low intensity (20 to 49 percent impervious) – 248,750 acres;
Developed, medium intensity (50 to 79 percent impervious) – 140,000 acres;
Developed, high density (more than 79 percent impervious) – 65,750 acres; and*

Developed, open space (less than 20 percent impervious) – 154,600 acres.”

In the following scenario, it appears that the following two land areas would be identical model inputs:

- Two residential developments
- Same total land area
- Same percentage of impervious area
- One built in 1960 with no stormwater BMPs at all
- The other development built in 2001, with a stormwater pond and multiple rain gardens and infiltration BMPs included.

If this is correct, this means that the baseline condition used for the model was urban land use with no BMPs in place. This, then, should be the baseline condition for the MS4 WLAs.

Furthermore, the MS4 WLA (expressed as either the 25% load reduction from the baseline or the target loading rates) is stated as being for the average flow condition (page 57). In light of this fact, setting the baseline for the MS4 WLA at 2002, because it corresponds to the 86th percentile flows condition, is inappropriate.

The baseline year set for the MS4 loadings is of immense importance for the regulated MS4s. Cities in Minnesota have been making sure that stormwater controls and BMPs have been implemented in significant numbers since the 1980s. As TMDLs and the MS4 permit are currently interpreted, setting the MS4 baseline year at 2002 would mean that a very large number of BMPs could not be counted toward meeting the TMDL. This would be of enormous financial consequence for the regulated MS4s.

10. **Insufficient cost estimates provided:** This TMDL Report includes a cost estimate only for achieving the MS4 WLA. This does not meet the statutory requirement for the preparation of a TMDL.

Statement of Action #10

Include “a range of estimates of the cost of implementation of the TMDL” in this TMDL Report. This range of estimates should include the cost to achieve all the allocations, including the LA.

Reasons or Proposed Findings #10

MN Statute 114D.25 includes the following text:

“(b) A TMDL must include a statement of the facts and scientific data supporting the TMDL and a list of potential implementation options, including:

- (1) a range of estimates of the cost of implementation of the TMDL; and*
- (2) for point sources, the individual wasteload data and the estimated cost of compliance addressed by the TMDL.”*

By including a cost estimate only for achieving the MS4 WLA and only addressing item b.2. in the statute listed above, this TMDL Report does not fulfill this statutory requirement. This TMDL Report should be revised to include the cost to achieve all the allocations, including the LA.

11. No model calibration or sensitivity analysis for urban discharges: It appears that the modeling for this TMDL did not include any calibration to validate or check the reliability of the model results for the loading from permitted MS4s. It also appears that no sensitivity analysis was performed for the loading from permitted MS4s to identify which variables had more or less influence on the model results.

Statement of Action #11

Perform calibration and sensitivity analysis for the elements of the model directly related to the permitted MS4 loading. If it is impossible to separate these elements in a model of the scale and/or type used for this TMDL, use a separate type and/or scale model to address loading from permitted MS4s.

Reasons or Proposed Findings #11

Calibration and sensitivity analysis are essential elements of water quality modeling. Without calibration and sensitivity analysis for the various types of loading included in this TMDL, the reliability and accuracy of the modeling results for each type of loading cannot be evaluated sufficiently. The results of a large-scale and coarse model that cannot support calibration and sensitivity analysis for the permitted MS4 loading are not sufficient to support the MS4 WLAs in this TMDL that result in an \$850 million set of legal obligations and liabilities for the permitted MS4 cities.

12. **Past results for the Minnesota River:** In 1992, Governor Arne Carlson issued a famous challenge: to make the Minnesota River fishable and swimmable in 10 years. The challenge resulted in:

- Improving water quality in the MN River became a high priority for a wide range of state agencies and local/regional entities
- State and local funding was directed toward improving water quality in the Minnesota River
- The effort was focused on a range of voluntary practices and incentives to achieve changes in the drainage area for the river.

In the 20 years since then, little discernible progress has been made, according to the MPCA's most recent biological assessment. A recent MPCA report titled "Revisiting the Minnesota River Assessment Project: An Evaluation of Fish and Invertebrate Community Progress (MPCA, May 2011, page 23) included the following text:

"In order to address the deteriorating conditions within the Basin, several advisory committees were formed, conservation programs were developed, and best management practices (BMPs) were implemented. To date, these efforts have led to only modest improvements to no change to the overall biological condition of rivers and streams within the Minnesota River Basin."

Other data indicates that TSS concentrations have diminished in the river but that flow rates have increased. When the lower concentrations are multiplied times the higher flows, the total loading in the river is roughly the same compared to 20 years ago.

Under the TMDL, the vast majority of the loading in the Mississippi River will come from the LA in the Minnesota River. The State's approach to achieving load reductions for this LA can be accurately described as follows:

- Improving water quality in the MN River will be a high priority for a wide range of state agencies and local/regional entities
- State and local funding will be directed toward improving water quality in the Minnesota River
- The effort will be focused on a range of voluntary practices and incentives to achieve changes in the drainage area for the river.

Please note the similarity of these bullet points to the bullet points in the paragraph just above.

Statement of Action #12

Please include, in the TMDL Report, an explanation of how the exact same approach that has yielded little or no improvement in the Minnesota River in the last 20 years can be expected to result in a 90% load reduction for the LA for the MN River. Please be specific and detailed.

Reasons or Proposed Findings #12

Please see above.

13. **25% MS4 load reduction is arbitrary and ineffectual:** The 25% load reduction for all permitted MS4s in the entire TMDL study area appears to be arbitrary and ineffectual. This load reduction also serves as the basis for the target loading rates. This load reduction is not supported by scientific evidence or modeling results.

Statement of Action #13

Please reconsider whether the 25% loading reduction is warranted and/or sufficiently supported by scientific data or modeling results. Please conduct a contested case hearing to make this determination.

Reasons or Proposed Findings #13

The 25% load reduction was the subject of some discussion with MS4 stakeholders during the development of this TMDL. At that time, many elements of the TMDL Report were either not known or not conveyed to the municipal participants. These elements included:

- The immense estimated cost to achieve the WLA
- The load reductions for the MN River TMDL
- The fact that the TSS loading in the Mississippi River above Lock & Dam 1 met or exceeded the TMDL target loading of 30 mg/L.

These stakeholder conversations also included only a very small percentage of the cities included in the drainage area. The implications of the decision to impose a 25% load reduction on all the MS4s was poorly understood by the participants in the stakeholder process. In light of these facts, the stakeholder process used, in large part, to arrive at the 25% load reduction was fatally flawed.

Finally, page 82 of the TMDL Report includes the following text, in the context of considering contingency measures if load reduction milestones are not met in the future:

“Contingency requirements for this TMDL will not include ratcheting down further on point sources by reducing their waste load allocations, be they permitted MS4s or permitted wastewater treatment facilities. As this document attests, these are very minor sources of sediment to the South Metro Mississippi River, and further reducing their waste load allocations will not help to accomplish the goals of the TMDL in any measurable way.”

The TMDL Report states that the permitted MS4s are only *“very minor sources of sediment”*. Additionally, the Report states that reducing the load from the permitted MS4s *“will not help to accomplish the goals of the TMDL in any measurable way.”*

The stakeholder process was flawed. The science and the modeling in the TMDL do not support the load reduction. The load from the permitted MS4s is insignificant. Load reduction from the permitted MS4s will be ineffectual toward meeting the TMDL goals. The 25% load reduction for all permitted MS4s should not stand.

14. **Trading:** There are huge cost differentials between BMPs on urban land compared to BMPs on non-urban land. This difference in cost-effectiveness calls out for a viable trading program that includes permitted MS4 cities.

Statement of Action #14

The TMDL Report should be revised to include more detail about the potential of trading. The MPCA should commit to the development of a viable trading program that includes permitted MS4 cities. The trading program should also include funding efforts to address non-CWA-mandated activities (stream bank erosion control, ravine stabilization, hydrologic controls, etc.) that are far more cost-effective than many urban BMPs. The MPCA’s trading development commitment should include specific timelines and interim milestones.

Reasons or Proposed Findings #14

Trading could result in a much more cost-effective set of responses to meet the TMDL goals. A specific commitment from the MPCA to develop a trading program that includes permitted MS4 cities is necessary and appropriate in the context of this TMDL.

15. **Density:** In 2006, USEPA published a guidance document titled “Protecting Water Resources with Higher-Density Development”. The conclusions from this guidance document should be incorporated into this TMDL, especially for the MS4 WLAs for permitted MS4 cities with higher-density development.

Statement of Action #15

The MS4 WLAs (load reductions and target loading rates) should be revised for MS4 cities with higher-density development. Higher-density development should not be viewed as a stormwater management BMP. Instead, the WLA numbers should be revised to reflect the value of higher-density development in protecting water quality.

Reasons or Proposed Findings #15

The USEPA guidance document includes the following text:

“EPA examined stormwater runoff from different development densities to determine the comparative difference between scenarios. This analysis demonstrated:

- The higher-density scenarios generate less stormwater runoff per house at all scales—one acre, lot, and watershed—and time series build-out examples;*
- For the same amount of development, higher-density development produces less runoff and less impervious cover than low-density development; and*
- For a given amount of growth, lower-density development impacts more of the watershed.*

Taken together, these findings indicate that low-density development may not always be the preferred strategy for protecting water resources. Higher densities may better protect water quality—especially at the lot and watershed levels. To accommodate the same number of houses, denser developments consume less land than lower density developments. Consuming less land means creating less impervious cover in the watershed. EPA believes that increasing development densities is one strategy communities can use to minimize regional water quality impacts.”

The WLAs for permitted MS4 cities with higher-density development should be revised to reflect the value of higher densities in protecting water quality, as described by USEPA. In considering density, the MPCA should include density factors beyond population. High-density development can also include office, commercial, industrial, and other types of land uses.

- 16. Defer the MS4 WLA load reductions:** The vast majority of the TSS loading to the Mississippi River is from unregulated, non-urban sources. Imposing load reductions on the regulated urban sources should be deferred pending confirmation that the large unregulated sources can be effectively reduced.

Statement of Action #16

Defer the imposition of the TMDL load reductions on the regulated sources until after it has been demonstrated that reasonable progress can be made in reducing the much larger loads from the unregulated sources. If such reasonable progress cannot be demonstrated, consideration should be made to declare certain sources “irretrievable” under applicable federal rules and to restructure the applicable standards and TMDL requirements accordingly.

Reasons or Proposed Findings #16

The estimated cost to achieve the TMDL goals for the permitted MS4s is immense: \$850 million. The TMDL Report states that the load from the permitted MS4s is insignificant and that the load reduction from the permitted MS4s will be ineffectual toward meeting the TMDL goals. It would be a waste of public funds to compel the permitted MS4s to expend these monies if it proves to be impossible to achieve the much larger load reductions needed from the unregulated sources. It is appropriate to defer the imposition of the TMDL load reductions on the regulated sources until after it has been demonstrated that reasonable progress can be made in reducing the much larger loads from the unregulated sources.

- 17. Address the challenges of controlling loading during high flow conditions:** The TMDL has a special focus on the need to control TSS loading during high and very high flow conditions. Controlling TSS loading during such conditions poses unique challenges.

Statement of Action #17

Revise the TMDL to address the unique challenges of controlling TSS loadings during high and very high flow conditions. Discuss the fact that most stormwater BMPs are effective only during small and medium-sized storm events and are overwhelmed during large storm events. Discuss the fact that many stabilization BMPs are effective under low and moderate flow conditions and are not effective during high and very high flow conditions. Please specifically address the question of whether existing BMP technologies are capable of addressing the challenges specifically related to high and very high flow conditions.

Reasons or Proposed Findings #17

The proposed revisions to the TMDL should be made because many of the known control BMPs have only limited effectiveness during high and very high flow conditions.

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18. **Additional information for the MS4 WLA cost estimate:** The estimated cost to meet the MS4 WLA is immense, \$850 million. For a cost of such magnitude, there is a remarkable lack of information regarding the method used to derive this estimated cost.

Statement of Action #18

Please provide additional information about the method used to derive the estimated cost to achieve the MS4 WLA. Specifically, please address the following questions:

- How was the estimated cost to reduce TSS loading from urban land derived from the study by Weiss et al (2007)?
- Were the authors of this study consulted in the process of deriving the cost estimate?
- Were there other sources, studies, research, or papers used to derive or confirm the cost estimate?
- Does the cost estimate reflect the high cost of reducing TSS loads in urban areas that are already built-out? Does the cost estimate reflect the fact that stormwater BMPs are much more expensive to implement as retrofits compared to implementing them during new development or redevelopment? Did the methodology for deriving the cost estimate include

an estimate of the portion of the MS4 cities where BMPs would have to be implemented as retrofits?

- Does the cost estimate include the cost of land for stormwater BMPs? Does it reflect an estimate of the higher cost of land for BMPs in retrofit situations?
- Does the cost estimate include the full life cycle costs of the proposed BMPs (maintenance, operations, mapping, documentation, reporting, inspections, decommissioning, etc.)?
- Was the methodology used to derive the cost estimate, in the view of the MPCA, sufficiently rigorous considering the magnitude of the cost, obligations, and legal liabilities that will be imposed on the regulated MS4 s because of this TMDL?

After considering, at a minimum, the questions listed above, the MPCA should consider revising the method used to derive the cost estimate to achieve the MS4 WLA. The revised number, along with a full explanation of the methodology used to derive it, should be included in a revision of the TMDL.

Reasons or Proposed Findings #18

Based in information provided during the public informational meetings, the methodology used to derive the estimated cost to achieve the MS4 WLA was not sufficiently rigorous considering the magnitude of the cost, obligations, and legal liabilities that will be imposed on the regulated MS4 s because of this TMDL.

19. **Margin of Safety vs. MS4 WLA:** The total load reduction for the permitted MS4s in this TMDL is approximately 1.5% of the total load to Lake Pepin. The estimated cost to achieve this load reduction is \$850 million. The TMDL, through linkage to the MS4 permits, creates an immense new set of legal obligations and liabilities for all the permitted MS4s.

The Margin of Safety (MOS) is defined as "*an accounting of uncertainty about the relationship between pollutant loads and receiving water quality.*" (page 2) The TMDL also states that the MOS is included "*to account for any lack of knowledge concerning the relationship between load and waste load allocations and water quality.*" (page 60) The MOS for this TMDL includes two portions: implicit and explicit. The implicit portion of the MOS is described but not quantified in the TMDL Report. In addition to the implicit margin of safety, an explicit margin of safety of 6% is included in the TMDL.

Thus, the total load reduction required of the permitted MS4s is significantly less than one quarter of the uncertainty and lack of knowledge about the relationship between the loads and the load reductions and the receiving water quality.

Statement of Action #19

Please provide a detailed explanation of the MPCA's rationale for creating such a large new set of legal obligations and liabilities for the permitted MS4s when the entire proposed MS4 load reduction is only a small portion of the uncertainty in the underlying study and modeling. Please reconsider whether this is appropriate or justified. Please do not limit this explanation to "the Clean Water Act requires it". Please consider redoing the study, with more attention to urban loadings, in order to strengthen the support for the MS4 WLA.

Reasons or Proposed Findings #19

Typically, the strength of the research or analysis in a study that supports the creation of new legal obligations and/or liabilities is commensurate with the magnitude of those obligations or liabilities. This is not the case, in this example. Based on the stated relationship between the MS4 load reduction and the uncertainty in the study, either the load reduction needs to be revised or the study needs to be improved.

20. **Second largest TMDL in the United States:** This TMDL, when approved, will be the second largest TMDL, in terms of drainage area, in the United States. Only the Chesapeake Bay TMDL is larger. The drainage area for this TMDL is approximately 45,000 square miles, compared to approximately 65,000 square miles for the Chesapeake Bay TMDL.

Statement of Action #20

The MPCA should ascertain the total amount of federal funding that has gone to support the development of and implementation for the Chesapeake Bay TMDL. The MPCA should then work with the federal elected officials for Minnesota and the USEPA to secure a commensurate and proportional amount of federal funding support for the development of and implementation for this TMDL.

Reasons or Proposed Findings

Commensurate and proportional federal funding support for this TMDL is fair and appropriate.

Conclusion

The City of Monticello asks that the MPCA take the requested actions set forth in this submittal. The City further requests that MPCA consider the comments raised in this submittal and revise or redo the TMDL Report.



Draft South Metro Mississippi River Total Suspended Solids TMDL Report

The City of Joseph submits these Public Comments in response to the Minnesota Pollution Control Agency's (MPCA) Public Notice for the Draft South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load Report (TMDL Report).

Administrator
Judy Weyrens

Statement of Interest

Mayor
Rick Schultz

The City of Joseph is in the drainage area for this TMDL and, thus, is directly affected by its findings.

Councilors
Steve Frank
Bob Loso
Renee Symanietz
Dale Wick

Comments

1. **Fatal flaws:** This TMDL, through the linkage to the MS4 permits, creates immense new legal obligations and liabilities for regulated MS4 cities. The simplest example of this is the \$850 million cost estimate to achieve the MS4 WLA. These obligations and liabilities are not controllable by the MPCA. The MPCA has limited enforcement discretion under the Clean Water Act and State statutes and rules. Independent third parties are encouraged and empowered to act as private attorneys general to sue either the MPCA or the permitted parties to ensure compliance. There is a history of such suits under the TMDL and stormwater permitting programs in Minnesota and the United States.

The power to create such significant new legal obligations and liabilities should be exercised with restraint, responsibility, and based on rigorous science, research, modeling, and analysis. These standards have not been met by this TMDL study and report.

Statement of Action #1

This TMDL should be withdrawn and redone. The flaws listed below, along with others, should be addressed and corrected.

Reasons or Proposed Findings #1

A list of some of the flaws of this TMDL is provided in the comments below. They include:

- Inadequate consideration of the fact that the TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target of 30 mg/L.
- The boundaries for the areas served by the MS4 conveyance system are significantly inaccurate throughout the TMDL
- Insufficient consideration of factors related to the distribution of particle sizes in various sources of stormwater runoff
- Improperly not using the results of the Minnesota River Turbidity TMDL as an input boundary condition for this TMDL
- Improperly setting the MS4 WLAs according to flow conditions in the river
- Improperly setting the MS4 baseline year at 2002
- Not meeting the statutory requirement to provide cost estimates for the implementation of the TMDL (for all sources and sectors)
- Providing no model calibration or sensitivity analysis for urban discharges
- Improperly setting a 25% MS4 load reduction that is arbitrary and ineffective
- Not providing sufficient information or MPCA commitment to trading, including for MS4 permitted cities
- Not accounting for the water quality benefits of high-density development in the process of setting the MS4 WLAs
- Not providing for the deferral of the MS4 WLA load reductions until actual reductions from the large unregulated sources can be demonstrated and confirmed
- Insufficient consideration of the fact that most stormwater and stabilization BMPs (urban and non-urban) are effective under low and moderate flow conditions but are not effective under high and very high flow conditions
- Providing insufficient information about the cost estimate to achieve the MS4 WLA
- Improperly requiring an MS4 load reduction that is much smaller than the MOS for the TMDL, and thus within the margin of uncertainty for the study, modeling, and the TMDL.

Many of these items are significant flaws individually. Taken together, they make the TMDL fatally flawed. With these flaws taken into consideration, the MPCA cannot say that the significant new legal obligations and liabilities created by this TMDL are the product of rigorous science, research, modeling, and analysis.

2. Insufficient attention to urban discharges: The development of this TMDL posed significant challenges for the MPCA. One of the fundamental conclusions of the

TMDL is that the large majority of the load comes from non-urban sources. Based on conversations with MPCA staff and discussions at the public information meetings for this TMDL, it appears that the MPCA decided to focus the large majority of its resources to addressing issues and questions related to the loading from non-urban sources.

From one perspective, this seems like a sound decision. Unfortunately, this TMDL creates immense new legal obligations and liabilities for regulated MS4 cities. The decision to focus on the non-urban sources meant that scant attention and resources were given to the issues and questions related to the discharges from urban sources. The results of this fact can be seen throughout the comments listed below.

Statement of Action #2

This TMDL should be withdrawn and redone. Sufficient attention and resources should be given to the issues and questions related to urban discharges. A proper and sufficient stakeholder process should be conducted with all the MS4 cities in the drainage area. The problems enumerated in the comments below should be rectified and resolved.

Additionally, the MPCA TMDL program should work directly with the permitted MS4 cities to correct the problems in this TMDL and ensure that such flaws are not perpetuated in other TMDLS.

Reasons or Proposed Findings #2

The MPCA should not create new legal obligations or liabilities of this magnitude for the permitted MS4 cities without allocating sufficient and appropriate staff and funding resources to prepare this TMDL or any other TMDL with urban discharges in the drainage area.

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- 3. Flexible expression of the MS4 WLA:** The MPCA is to be commended for the manner in which the MS4 WLA is expressed in this TMDL. It is presented as numbers in metric tons per year for average flow conditions, and in metric tons per year and kilograms per day for the five flow conditions. The MS4 WLA is also expressed as a 25% reduction. Finally, it is also expressed as target loads for built-up areas (169 lbs/acre/year), newly developed areas, and open-space developed areas (112.5

lbs/acre/year). These multiple expressions of the MS4 WLA allow for appropriate flexibility for MS4s in designing and implementing urban stormwater management programs to meet the MS4 WLA for this TMDL.

4. TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target:

The TMDL Report States that the TSS concentrations upstream of Lock & Dam 1 meet or exceed the TMDL target of 30 mg/L. The following text is from page 28 of the TMDL Report:

“the long-term TSS concentration is 24 mg/L in the Mississippi River at Anoka, compared to 20 mg/L 24 miles downstream at Lock & Dam 1, in the heart of the Twin Cities metropolitan area”

In fact, the flows in the Mississippi River above Lock & Dam 1 are improving the water quality, helping to attain and maintain the water quality standard, and are not contributing to the impairment (in a manner similar to the wastewater treatment plants that are discharging at concentrations less than 30 mg/L (see page 53 of the TMDL Report)).

Statement of Action #4

The WLA for MS4 stormwater sources should be revised to reflect the facts above. The form of these revisions requires discussion and negotiation among MPCA, USEPA, and the affected regulated stormwater sources. Options could include:

- Exclude the entire drainage area for the Mississippi River above Lock & Dam 1 from the TMDL study area
- Consider the permitted discharges from the regulated MS4 permittees above Lock & Dam 1 to be similar to the discharges from wastewater treatment facilities that are below the 30 mg/L target. Adopt TMDL language similar to that on page 53 of the TMDL Report: *“Because this effluent concentration is less than the water quality standard of 32 mg/L, discharge from these facilities will remain below the water quality standard, thereby helping to attain and maintain the standard. For such facilities, which are listed in Appendix A, compliance with NPDES permits will be interpreted to constitute compliance with the TMDL”.*
- Eliminate the 25% load reduction for all permitted MS4s above Lock & Dam 1, in light of this fact and other reasons. This approach could be similar to the approach taken for the MS4 dischargers in the Upper Vermillion River in deciding not to impose load reductions on them as part of the Lower Vermillion River Turbidity (TSS) TMDL. This language is from page 7 of that

report: *“No load reductions are necessary for the Upper Vermillion River, although the planned movement of the Empire wastewater treatment plant effluent to the Mississippi River is expected to have a beneficial impact on water quality within the LVR. Despite the fact that no load reductions are required for these sources, a load allocation for the Upper Vermillion River and wasteload allocations for its NDPEs permitted municipalities (MS4s) were computed to meet the requirements of a comprehensive TMDL.”*

At a minimum, the MPCA should explain why, in light of these facts, the drainage area above Lock & Dam 1 should be included in this TMDL study area and/or why the permitted MS4s above Lock & Dam 1 should have a required load reduction.

Reasons or Proposed Findings #4

The facts supporting this comment are included in the TMDL Report. We recommend a detailed review and discussion with stakeholders of the research, studies, and reports that were executed or prepared in the course of developing this TMDL and the Lake Pepin model. Details from these materials would serve as the basis for a contested case hearing on this comment. Precedent is available in other TMDLs.

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5. **Incorrect boundaries for MS4 cities:** The boundaries and land areas for the permitted MS4 cities used in this TMDL study are incorrect and significantly flawed. The TMDL Report is based on the 2002 National Land Cover Data (NLCD). Please see this excerpt from page 56 of the TMDL Report:

“To calculate the wastewater waste load allocation for regulated MS4 stormwater, the MPCA estimated loads using 2002 National Land Cover Data (NLCD) and TSS export coefficients for the NLCD land use classifications. The NLCD includes four developed land uses. These were assumed to represent urban land use. The four classes are based on ranges of impervious cover, as indicated below.

Using a Geographic Information System (GIS), NLCD developed land uses were clipped using the regulated MS4 boundaries. The following acreages were determined for the South Metro Mississippi watershed:

- *Developed, low intensity (20 to 49 percent impervious) – 248,750 acres;*
- *Developed, medium intensity (50 to 79 percent impervious) – 140,000 acres;*
- *Developed, high density (more than 79 percent impervious) – 65,750 acres; and*
- *Developed, open space (less than 20 percent impervious) – 154,600 acres.”*

Statement of Action #5

The TMDL should be revised using the accurate boundaries for the permitted areas within MS4 cities. The modeling should be revised using these boundaries. These boundaries can be provided by the cities. The boundaries for the MS4 WLA should be set to include only the land areas covered by the MS4 permit. The modeling should be redone based on these corrected MS4 boundaries.

Reasons or Proposed Findings #5

The boundaries for the permitted cities are flawed in at least three significant ways:

- The outside boundaries of the areas covered under the MS4 permit are not accurate. These outside boundaries are determined by the land areas served by the cities' MS4 conveyance systems. The cities have these areas mapped, but the MPCA never requested this information in the course of preparing the TMDL. The NLCD does not include any information about the extent of the land areas served by any of the MS4 cities' conveyance systems. The actual boundaries of the land areas served by the conveyance system and, therefore, covered under the MS4 permit were not used in the course of developing the TMDL or any of the underlying models. Only the permitted areas of the MS4 cities should be included in the WLA.
- Some of the cities in the drainage area for this TMDL have significant land areas within their boundaries that have never discharged urban stormwater outside the city boundaries or to the Mississippi River or its tributaries. In some cases, these landlocked areas constitute one-third or one-half of the land area served by the cities' MS4 conveyance systems. The land areas used to develop the TMDL and the underlying models did not include this information and are, therefore, significantly inaccurate. The MPCA never requested this information from any of the permitted cities in the drainage area.
- There are portions of every permitted MS4 city that drain overland (sheet flow) directly to receiving waters without passing through the cities' MS4 conveyance systems. Depending on the density and types of receiving waters in each city, this land area can be as much as 30% of the land area within the outside boundary of a city's MS4 conveyance system. The loading from this type of land, immediately adjacent to receiving waters, corresponds to near-channel loading that was found to be a very significant type of contribution to the loading for the Minnesota River. The land areas used to develop the TMDL and the underlying models did not include this information and are, therefore, significantly inaccurate. The MPCA never requested this information from any of the permitted cities in the drainage area.

Taken together, these flaws mean that the land areas for the permitted MS4 cities used to develop the TMDL and the underlying models were significantly inaccurate. This means that the WLA for the permitted cities is inaccurate. Establishing the correct boundaries is one of the most fundamental starting points for any water quality modeling project. The fact that the MS4 cities' boundaries are significantly inaccurate in this TMDL study is unacceptable and inexcusable.

- 6. Variations in particle size distributions:** Information about variation in the distribution of particle sizes in runoff from various sources is missing from this TMDL. Information about the relationship between the particle size distribution of runoff and the resulting turbidity in the receiving waters is also missing. Without addressing these factors, the MS4 WLA cannot be accurate.

Statement of Action #6

Please revise the TMDL study to include information about the distribution of particle sizes in runoff from various sources. Revise the TMDL to address issues related to the relationship between particle sizes and turbidity. Address the differences in the particle size distributions between urban stormwater discharges and discharges from non-urban sources. Address these differences and relationships in the modeling for the TMDL. Revise the load allocations with particle size distributions included as factors.

Reasons or Proposed Findings #6

It is widely recognized that the sizes of particles is a significant factor in the relationship between TSS loading and turbidity in receiving waters. Smaller particles more greatly influence higher turbidity. It is also widely recognized that there are significant differences between the particle size distributions for urban runoff compared to non-urban runoff. Without addressing these factors, the MS4 WLA cannot be accurate. Saint Anthony Falls Laboratory, of the University of Minnesota, is a source of excellent information and research on these subjects.

- 7. MN River TMDL loading should be an input boundary condition:** This TMDL should be revised to include the results from the Minnesota River Turbidity TMDL as an input boundary condition. As written, the loading from the Minnesota River Basin in

the modeling that supports the final allocations does not match the loading targets for the basin in the Minnesota River Turbidity TMDL.

Statement of Action #7

Revise the TMDL to include the results from the Minnesota River Turbidity TMDL as an input boundary condition. Revise the underlying models and revise all the allocations accordingly. The Minnesota River modeling Scenario 5 should be linked to the South Metro Mississippi modeling system (instead of Scenario 4, see page 45) and the new model results should serve as the basis for a new set of allocations for this TMDL. The same action should be taken for the Cannon River Basin and Vermillion River Basin, based on the text on page 47 of the TMDL Report.

Reasons or Proposed Findings #7

The study area for the Minnesota River Turbidity TMDL matches the Minnesota River Basin included in this TMDL. The results of the MN River TMDL should be used as input for this TMDL. This is customary practice for “nested” TMDLs. It was clearly the intent described on page 45 of the TMDL Report, but the wrong scenario was used. Scenario 5 from the MN River TMDL should be used because it is the basis for the allocations in the MN River TMDL. Without this revision, all the allocations in this TMDL are incorrect. The load reduction in the MN River TMDL is 90%. The load reduction for the MN River Basin in this TMDL Report is 50% to 60%. There is a significant difference between these two load reductions.

The same reasons or proposed findings apply to Cannon River Basin and Vermillion River Basin, based on the text on page 47 of the TMDL Report.

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8. **Setting MS4 WLAs in relationship to flow conditions:** There are multiple questions regarding the appropriateness of determining and setting the MS4 WLAs according to five flow conditions. These include, but are not limited to :
- There is relatively little correlation between the TSS loading in urban discharges and the flow condition in the river. In a river system the size of the Mississippi River, the flow conditions are frequently determined by large-scale rain events over large land areas and long durations of time. TSS loading accumulates on urban impervious surfaces at a fairly constant rate over time. This load is then washed off and discharged to the receiving water during intense rain events. These rain events can be short, localized events that have minimal effect on the flow in the river but result in significant TSS loading

from the urban land. In the event of a heavy, long-duration rain event, the loading in the urban discharge is typically much greater early in the event than later in the event. The amount of time between intense rain events is more important than the size or duration of each event. The large portion of impervious surfaces serves to armor the surface from the impact of raindrops, thus making the loading in the urban discharges much different from the loading in non-urban settings with low percentages of impervious surfaces. The timing and amount of TSS loading from urban land behaves in very different ways than TSS loading from non-urban land.

- TSS loading from urban land during snowmelt and floods is very different from the loading from non-urban land. Cities have addressed flood control in their jurisdictions for many years. They commonly have significant flood control structures and BMPs in place within their jurisdictions. Many of these structures impound water, thus changing the flow regime and settling out significant amounts of solids. The armoring of urban surfaces also results in loading during the large rain events that may cause floods to be much different from the loading for non-urban land. The saturation of the soils is much less a factor in urban settings. Floods and snowmelt are conditions that result in a significant portion of the total TSS loading to the river system.
- In a river system the size of the Mississippi River, the flow condition in the river will frequently be determined by a rain or snowmelt event that has occurred far upstream of a given MS4 city. In that circumstance, the city could have little loading in its discharge during a flow condition when a larger loading would be allowed under the MS4 WLA. Conversely, a city can have an intense localized rain event that causes heavy loading in its discharge but does not change a low flow condition in the river. This could be viewed as a violation of the MS4 WLA that is set according to low flow conditions.

There is no indication that these factors were considered in the process of setting the MS4 WLAs according to the flow conditions in the river.

Statement of Action #8

If these factors and other related factors were considered in the course of developing the TMDL model and allocations, please provide a complete explanation in the TMDL Report. If they were not, please revise the TMDL methodology, model, and allocations to address these factors. Please evaluate and reconsider whether the MS4 WLAs should be expressed in relationship with the flow conditions in the river. If it is determined that this approach is poorly supported, please revise the methodology, modeling, and/or allocations appropriately.

Reasons or Proposed Findings #8

There are significant and multiple differences between TSS loadings in urban and non-urban settings. There are very different relationships between rainfall, snowmelt, and TSS loadings in urban and non-urban settings. If these differences were addressed in deciding to link the MS4 WLAs to the flow conditions in the river, a complete and comprehensive explanation is needed in the TMDL Report. If these differences were not addressed and the linkage between the MS4 WLAs and the river flow conditions is not appropriate, the MS4 WLA are expressed inappropriately and the TMDL is setting the MS4 cities up for failure and violations.

9. **Baseline set at no BMPs:** The baseline for the MS4 WLAs for this TMDL should be set with no BMPs in place at all. The baseline condition should not be set based on the year of the 86th percentile flow condition.

Statement of Action #9

Please revise the baseline for the MS4 WLAs as the condition with no BMPs in place. Please disconnect the baseline from a specific year.

Reasons or Proposed Findings #9

The HSPF model, as described in the TMDL Report, did not include BMPs for the land use inputs. As listed on page 56 of the TMDL Report, the model used NCLD developed land uses. It appears that there were only four types of land uses included. They were differentiated only by the percentage of impervious area. They were:

*"Developed, low intensity (20 to 49 percent impervious) – 248,750 acres;
Developed, medium intensity (50 to 79 percent impervious) – 140,000 acres;
Developed, high density (more than 79 percent impervious) – 65,750 acres; and
Developed, open space (less than 20 percent impervious) – 154,600 acres."*

In the following scenario, it appears that the following two land areas would be identical model inputs:

- Two residential developments
- Same total land area
- Same percentage of impervious area
- One built in 1960 with no stormwater BMPs at all

- The other development built in 2001, with a stormwater pond and multiple rain gardens and infiltration BMPs included.

If this is correct, this means that the baseline condition used for the model was urban land use with no BMPs in place. This, then, should be the baseline condition for the MS4 WLAs.

Furthermore, the MS4 WLA (expressed as either the 25% load reduction from the baseline or the target loading rates) is stated as being for the average flow condition (page 57). In light of this fact, setting the baseline for the MS4 WLA at 2002, because it corresponds to the 86th percentile flows condition, is inappropriate.

The baseline year set for the MS4 loadings is of immense importance for the regulated MS4s. Cities in Minnesota have been making sure that stormwater controls and BMPs have been implemented in significant numbers since the 1980s. As TMDLs and the MS4 permit are currently interpreted, setting the MS4 baseline year at 2002 would mean that a very large number of BMPs could not be counted toward meeting the TMDL. This would be of enormous financial consequence for the regulated MS4s.

10. **Insufficient cost estimates provided:** This TMDL Report includes a cost estimate only for achieving the MS4 WLA. This does not meet the statutory requirement for the preparation of a TMDL.

Statement of Action #10

Include “a range of estimates of the cost of implementation of the TMDL” in this TMDL Report. This range of estimates should include the cost to achieve all the allocations, including the LA.

Reasons or Proposed Findings #10

MN Statute 114D.25 includes the following text:

“(b) A TMDL must include a statement of the facts and scientific data supporting the TMDL and a list of potential implementation options, including:

- (1) a range of estimates of the cost of implementation of the TMDL; and*
- (2) for point sources, the individual wasteload data and the estimated cost of compliance addressed by the TMDL.”*

By including a cost estimate only for achieving the MS4 WLA and only addressing item b.2. in the statute listed above, this TMDL Report does not fulfill this statutory requirement. This TMDL Report should be revised to include the cost to achieve all the allocations, including the LA.

11. No model calibration or sensitivity analysis for urban discharges: It appears that the modeling for this TMDL did not include any calibration to validate or check the reliability of the model results for the loading from permitted MS4s. It also appears that no sensitivity analysis was performed for the loading from permitted MS4s to identify which variables had more or less influence on the model results.

Statement of Action #11

Perform calibration and sensitivity analysis for the elements of the model directly related to the permitted MS4 loading. If it is impossible to separate these elements in a model of the scale and/or type used for this TMDL, use a separate type and/or scale model to address loading from permitted MS4s.

Reasons or Proposed Findings #11

Calibration and sensitivity analysis are essential elements of water quality modeling. Without calibration and sensitivity analysis for the various types of loading included in this TMDL, the reliability and accuracy of the modeling results for each type of loading cannot be evaluated sufficiently. The results of a large-scale and coarse model that cannot support calibration and sensitivity analysis for the permitted MS4 loading are not sufficient to support the MS4 WLAs in this TMDL that result in an \$850 million set of legal obligations and liabilities for the permitted MS4 cities.

12. Past results for the Minnesota River: In 1992, Governor Arne Carlson issued a famous challenge: to make the Minnesota River fishable and swimmable in 10 years. The challenge resulted in:

- Improving water quality in the MN River became a high priority for a wide range of state agencies and local/regional entities
- State and local funding was directed toward improving water quality in the Minnesota River
- The effort was focused on a range of voluntary practices and incentives to achieve changes in the drainage area for the river.

In the 20 years since then, little discernible progress has been made, according to the MPCA's most recent biological assessment. A recent MPCA report titled "Revisiting the Minnesota River Assessment Project: An Evaluation of Fish and Invertebrate Community Progress (MPCA, May 2011, page 23) included the following text:

"In order to address the deteriorating conditions within the Basin, several advisory committees were formed, conservation programs were developed, and best management practices (BMPs) were implemented. To date, these efforts have led to only modest improvements to no change to the overall biological condition of rivers and streams within the Minnesota River Basin."

Other data indicates that TSS concentrations have diminished in the river but that flow rates have increased. When the lower concentrations are multiplied times the higher flows, the total loading in the river is roughly the same compared to 20 years ago.

Under the TMDL, the vast majority of the loading in the Mississippi River will come from the LA in the Minnesota River. The State's approach to achieving load reductions for this LA can be accurately described as follows:

- Improving water quality in the MN River will be a high priority for a wide range of state agencies and local/regional entities
- State and local funding will be directed toward improving water quality in the Minnesota River
- The effort will be focused on a range of voluntary practices and incentives to achieve changes in the drainage area for the river.

Please note the similarity of these bullet points to the bullet points in the paragraph just above.

Statement of Action #12

Please include, in the TMDL Report, an explanation of how the exact same approach that has yielded little or no improvement in the Minnesota River in the last 20 years can be expected to result in a 90% load reduction for the LA for the MN River. Please be specific and detailed.

Reasons or Proposed Findings #12

Please see above.

13. **25% MS4 load reduction is arbitrary and ineffectual:** The 25% load reduction for all permitted MS4s in the entire TMDL study area appears to be arbitrary and ineffectual. This load reduction also serves as the basis for the target loading rates. This load reduction is not supported by scientific evidence or modeling results.

Statement of Action #13

Please reconsider whether the 25% loading reduction is warranted and/or sufficiently supported by scientific data or modeling results. Please conduct a contested case hearing to make this determination.

Reasons or Proposed Findings #13

The 25% load reduction was the subject of some discussion with MS4 stakeholders during the development of this TMDL. At that time, many elements of the TMDL Report were either not known or not conveyed to the municipal participants. These elements included:

- The immense estimated cost to achieve the WLA
- The load reductions for the MN River TMDL
- The fact that the TSS loading in the Mississippi River above Lock & Dam 1 met or exceeded the TMDL target loading of 30 mg/L.

These stakeholder conversations also included only a very small percentage of the cities included in the drainage area. The implications of the decision to impose a 25% load reduction on all the MS4s was poorly understood by the participants in the stakeholder process. In light of these facts, the stakeholder process used, in large part, to arrive at the 25% load reduction was fatally flawed.

Finally, page 82 of the TMDL Report includes the following text, in the context of considering contingency measures if load reduction milestones are not met in the future:

“Contingency requirements for this TMDL will not include ratcheting down further on point sources by reducing their waste load allocations, be they permitted MS4s or permitted wastewater treatment facilities. As this document attests, these are very minor sources of sediment to the South Metro Mississippi River, and further reducing their waste load allocations will not help to accomplish the goals of the TMDL in any measurable way.”

The TMDL Report states that the permitted MS4s are only “*very minor sources of sediment*”. Additionally, the Report states that reducing the load from the permitted MS4s “*will not help to accomplish the goals of the TMDL in any measurable way.*”

The stakeholder process was flawed. The science and the modeling in the TMDL do not support the load reduction. The load from the permitted MS4s is insignificant. Load reduction from the permitted MS4s will be ineffectual toward meeting the TMDL goals. The 25% load reduction for all permitted MS4s should not stand.

14. **Trading:** There are huge cost differentials between BMPs on urban land compared to BMPs on non-urban land. This difference in cost-effectiveness calls out for a viable trading program that includes permitted MS4 cities.

Statement of Action #14

The TMDL Report should be revised to include more detail about the potential of trading. The MPCA should commit to the development of a viable trading program that includes permitted MS4 cities. The trading program should also include funding efforts to address non-CWA-mandated activities (stream bank erosion control, ravine stabilization, hydrologic controls, etc.) that are far more cost-effective than many urban BMPs. The MPCA’s trading development commitment should include specific timelines and interim milestones.

Reasons or Proposed Findings #14

Trading could result in a much more cost-effective set of responses to meet the TMDL goals. A specific commitment from the MPCA to develop a trading program that includes permitted MS4 cities is necessary and appropriate in the context of this TMDL.

15. **Density:** In 2006, USEPA published a guidance document titled “Protecting Water Resources with Higher-Density Development”. The conclusions from this guidance document should be incorporated into this TMDL, especially for the MS4 WLAs for permitted MS4 cities with higher-density development.

Statement of Action #15

The MS4 WLAs (load reductions and target loading rates) should be revised for MS4 cities with higher-density development. Higher-density development should not be viewed as a stormwater management BMP. Instead, the WLA numbers should be revised to reflect the value of higher-density development in protecting water quality.

Reasons or Proposed Findings #15

The USEPA guidance document includes the following text:

“EPA examined stormwater runoff from different development densities to determine the comparative difference between scenarios. This analysis demonstrated:

- *The higher-density scenarios generate less stormwater runoff per house at all scales—one acre, lot, and watershed—and time series build-out examples;*
- *For the same amount of development, higher-density development produces less runoff and less impervious cover than low-density development; and*
- *For a given amount of growth, lower-density development impacts more of the watershed.*

Taken together, these findings indicate that low-density development may not always be the preferred strategy for protecting water resources. Higher densities may better protect water quality—especially at the lot and watershed levels. To accommodate the same number of houses, denser developments consume less land than lower density developments. Consuming less land means creating less impervious cover in the watershed. EPA believes that increasing development densities is one strategy communities can use to minimize regional water quality impacts.”

The WLAs for permitted MS4 cities with higher-density development should be revised to reflect the value of higher densities in protecting water quality, as described by USEPA. In considering density, the MPCA should include density factors beyond population. High-density development can also include office, commercial, industrial, and other types of land uses.

16. Defer the MS4 WLA load reductions: The vast majority of the TSS loading to the Mississippi River is from unregulated, non-urban sources. Imposing load reductions on the regulated urban sources should be deferred pending confirmation that the large unregulated sources can be effectively reduced.

Statement of Action #16

Defer the imposition of the TMDL load reductions on the regulated sources until after it has been demonstrated that reasonable progress can be made in reducing the much larger loads from the unregulated sources. If such reasonable progress cannot be demonstrated, consideration should be made to declare certain sources “irretrievable” under applicable federal rules and to restructure the applicable standards and TMDL requirements accordingly.

Reasons or Proposed Findings #16

The estimated cost to achieve the TMDL goals for the permitted MS4s is immense: \$850 million. The TMDL Report states that the load from the permitted MS4s is insignificant and that the load reduction from the permitted MS4s will be ineffectual toward meeting the TMDL goals. It would be a waste of public funds to compel the permitted MS4s to expend these monies if it proves to be impossible to achieve the much larger load reductions needed from the unregulated sources. It is appropriate to defer the imposition of the TMDL load reductions on the regulated sources until after it has been demonstrated that reasonable progress can be made in reducing the much larger loads from the unregulated sources.

17. Address the challenges of controlling loading during high flow conditions: The TMDL has a special focus on the need to control TSS loading during high and very high flow conditions. Controlling TSS loading during such conditions poses unique challenges.

Statement of Action #17

Revise the TMDL to address the unique challenges of controlling TSS loadings during high and very high flow conditions. Discuss the fact that most stormwater BMPs are effective only during small and medium-sized storm events and are overwhelmed during large storm events. Discuss the fact that many stabilization BMPS are effective under low and moderate flow conditions and are not effective during high and very high flow conditions. Please specifically address the question of whether

existing BMP technologies are capable of addressing the challenges specifically related to high and very high flow conditions.

Reasons or Proposed Findings #17

The proposed revisions to the TMDL should be made because many of the known control BMPs have only limited effectiveness during high and very high flow conditions.

18. Additional information for the MS4 WLA cost estimate: The estimated cost to meet the MS4 WLA is immense, \$850 million. For a cost of such magnitude, there is a remarkable lack of information regarding the method used to derive this estimated cost.

Statement of Action #18

Please provide additional information about the method used to derive the estimated cost to achieve the MS4 WLA. Specifically, please address the following questions:

- How was the estimated cost to reduce TSS loading from urban land derived from the study by Weiss et al (2007)?
- Were the authors of this study consulted in the process of deriving the cost estimate?
- Were there other sources, studies, research, or papers used to derive or confirm the cost estimate?
- Does the cost estimate reflect the high cost of reducing TSS loads in urban areas that are already built-out? Does the cost estimate reflect the fact that stormwater BMPs are much more expensive to implement as retrofits compared to implementing them during new development or redevelopment? Did the methodology for deriving the cost estimate include an estimate of the portion of the MS4 cities where BMPs would have to be implemented as retrofits?
- Does the cost estimate include the cost of land for stormwater BMPs? Does it reflect an estimate of the higher cost of land for BMPs in retrofit situations?
- Does the cost estimate include the full life cycle costs of the proposed BMPs (maintenance, operations, mapping, documentation, reporting, inspections, decommissioning, etc.)?
- Was the methodology used to derive the cost estimate, in the view of the MPCA, sufficiently rigorous considering the magnitude of the cost,

obligations, and legal liabilities that will be imposed on the regulated MS4 s because of this TMDL?

After considering, at a minimum, the questions listed above, the MPCA should consider revising the method used to derive the cost estimate to achieve the MS4 WLA. The revised number, along with a full explanation of the methodology used to derive it, should be included in a revision of the TMDL.

Reasons or Proposed Findings #18

Based in information provided during the public informational meetings, the methodology used to derive the estimated cost to achieve the MS4 WLA was not sufficiently rigorous considering the magnitude of the cost, obligations, and legal liabilities that will be imposed on the regulated MS4 s because of this TMDL.

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19. **Margin of Safety vs. MS4 WLA:** The total load reduction for the permitted MS4s in this TMDL is approximately 1.5% of the total load to Lake Pepin. The estimated cost to achieve this load reduction is \$850 million. The TMDL, through linkage to the MS4 permits, creates an immense new set of legal obligations and liabilities for all the permitted MS4s.

The Margin of Safety (MOS) is defined as *“an accounting of uncertainty about the relationship between pollutant loads and receiving water quality.”* (page 2) The TMDL also states that the MOS is included *“to account for any lack of knowledge concerning the relationship between load and waste load allocations and water quality.”* (page 60) The MOS for this TMDL includes two portions: implicit and explicit. The implicit portion of the MOS is described but not quantified in the TMDL Report. In addition to the implicit margin of safety, an explicit margin of safety of 6% is included in the TMDL.

Thus, the total load reduction required of the permitted MS4s is significantly less than one quarter of the uncertainty and lack of knowledge about the relationship between the loads and the load reductions and the receiving water quality.

Statement of Action #19

Please provide a detailed explanation of the MPCA’s rationale for creating such a large new set of legal obligations and liabilities for the permitted MS4s when the entire proposed MS4 load reduction is only a small portion of the uncertainty in the

underlying study and modeling. Please reconsider whether this is appropriate or justified. Please do not limit this explanation to “the Clean Water Act requires it”. Please consider redoing the study, with more attention to urban loadings, in order to strengthen the support for the MS4 WLA.

Reasons or Proposed Findings #19

Typically, the strength of the research or analysis in a study that supports the creation of new legal obligations and/or liabilities is commensurate with the magnitude of those obligations or liabilities. This is not the case, in this example. Based on the stated relationship between the MS4 load reduction and the uncertainty in the study, either the load reduction needs to be revised or the study needs to be improved.

20. Second largest TMDL in the United States: This TMDL, when approved, will be the second largest TMDL, in terms of drainage area, in the United States. Only the Chesapeake Bay TMDL is larger. The drainage area for this TMDL is approximately 45,000 square miles, compared to approximately 65,000 square miles for the Chesapeake Bay TMDL.

Statement of Action #20

The MPCA should ascertain the total amount of federal funding that has gone to support the development of and implementation for the Chesapeake Bay TMDL. The MPCA should then work with the federal elected officials for Minnesota and the USEPA to secure a commensurate and proportional amount of federal funding support for the development of and implementation for this TMDL.

Reasons or Proposed Findings

Commensurate and proportional federal funding support for this TMDL is fair and appropriate.

Conclusion

The City of Joseph asks that the MPCA take the requested actions set forth in this submittal. The City further requests that MPCA consider the comments raised in this submittal and revise or redo the TMDL Report.

Appendix D – MPCA’s Response to Comments

The following is a copy of the document entitled “MPCA’s Response to Comments on ‘South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load’”:

**Response to Comments on *'South Metro Mississippi River
Total Suspended Solids Total Maximum Daily Load'***

October 2015

Minnesota Pollution Control Agency

Introduction

This document contains responses to comments received on the draft South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load (TMDL) in response to the public notice from February 27, 2012, through May 29, 2012.

The Minnesota Pollution Control Agency (MPCA) received over 400 written submittals in the form of letters, e-mails and other formats that ranged from very brief general statements to extensively detailed comments over multiple pages. Many submittals contained identical or very similar content to other submittals. Among the comments received were 28 requests (some with multiple signatories) for a contested case hearing and one request to speak before the MPCA Board prior to submittal of the TMDL to the Environmental Protection Agency (EPA).

The comments received are available at the project webpage at, <http://www.pca.state.mn.us/ktqh98b>, and are grouped by stakeholder category. In order to respond in an efficient manner we have sorted the comments as shown in the table below. Duplicate or similar comment submittals are aggregated into one row. Submittals containing additional unique comments that warranted a separate response are separately listed. Comments are generally not transcribed in this document and instead are paraphrased (with the “comment letter code” from the table below to the right of the comment for reference). Each is then followed with the MPCA’s response.

Stakeholder Category (on webpage)	Commenter(s)	Comment Letter Code
Agriculture	Minnesota Corn Growers Association and 15 other organizations and individuals	01
Government units	Capitol Region Watershed District	02
	Lower Minnesota River Watershed District*	03
	Minnesota Department of Natural Resources	04
	Minnesota Department of Transportation	05
	Mississippi Watershed Management Organization	06
	Nine Mile Creek Watershed District	07
	North Cass Water Resource District	08
	South Washington Watershed District	09
	US Department of the Interior—Fish And Wildlife Service	10
	US Department of the Interior—National Park Service	11
	Wisconsin Department of Natural Resources (3 submittals)	12
	Individuals	Minnesota Environmental Action Network form letter from 300+ individuals
Jack Enblom		14
Mike Denney		15
Tom Dimond		16
Gregory Eggers		17
Les Everett		18
Steve Henry		19
Gary Joachim		20
Georgia Joachim		21
Norman Senjem		22
Other individuals (general or duplicated comments)	23	
Minnesota Soybean Growers	Minnesota Soybean Growers Associations plus five duplicate letters with multiple signatories*	24
Municipalities	Minnesota Cities Stormwater Coalition plus Minnesota Inter-County Association and 21 cities with duplicate or related comment submittals*	25
	Bloomington	26
	Bolton & Menk letters for 12 communities plus Empire Township letter	27
	League of Minnesota Cities and 10 other organizations and cities	28
	Metropolitan Council	29
	Minnesota Environmental Science and Economic Review Board	30
	Minneapolis*	31
	Monticello	32
	Saint Paul	33
	Scott County Community Services Division	34
Woodbury	35	
Non-profit groups	Cannon River Watershed Partnership	36
	Friends of the Mississippi River	37
	Lake Pepin Legacy Alliance*	38
	Land Stewardship Project	39
	Minnesota Center for Environmental Advocacy	40
Tribal organizations	Mendota Mdewakanton Dakota Community	41

*Indicates contested case hearing request included

Responses to comments are organized in this document by issue area, as follows:

- A. [Urban stormwater interests and related comments](#)
- B. [Agricultural interests and related comments](#)
- C. [Wastewater and related comments](#)
- D. [Load allocation methodology comments](#)
- E. [Reasonable assurance comments](#)
- F. [Implementation-related comments](#)
- G. [General comments](#)

The MPCA has carefully considered the comments received and, thus, has made many changes to the TMDL report. As a result of changes made, several of the contested case hearing requests as well as the request to address the MPCA Board, have been withdrawn. (Note: the latter was done prior to the elimination of the MPCA Board by the Minnesota Legislature.) Those contested case hearing requests that were not withdrawn are being denied based on our evaluation that the issues raised did not meet the criteria for a contested case hearing. Separate MPCA written documentation—a Findings of Fact—addresses those denials.

The more significant changes to the TMDL are summarized below. Other minor changes, fixes and clarifications were made as well.

- A summary of more recent research conducted to compare the effects of climate vs. land use on stream-channel erosion and sediment loading.
- Inclusion of an internal loading allocation in the TMDL tables.
- Separation of Minnesota's and Wisconsin's allocations in the TMDL tables.
- Updated land cover figures and statistics based on 2011 NLCD data.
- A revised summary of other sediment-related TMDLs within the drainage area. Most significant is a finding that projected load reductions from the approved Lower Crow River turbidity TMDL can account for the full 20% reduction called for within the Upper Mississippi River Basin.
- Revisions to the methodology for waste load allocations and reductions for Municipal Separate Storm Sewer Systems (MS4) stormwater. Notable changes include removing the across-the-board 25% reduction for all MS4s regardless of location and removing the baseline year. The need for a reduction is now based on an MS4's location within the drainage area and its own evaluation of its loading relative to the target areal loading used to derive the waste load allocation. Also, the industrial/construction stormwater wasteload allocation was revised (had been miscalculated in the draft).
- Updates to both the list of regulated wastewater facilities and associated waste load allocations (minor changes) and the list of regulated MS4s (updated to reflect additional MS4s as the result of the 2010 U.S. Census population data and urbanized area)
- A revision to the Implementation Strategy section to align it with the newly drafted report entitled "Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River" (hereinafter, "Sediment Strategy"). That document is available at: <http://www.pca.state.mn.us/ark8qrf>
- Revisions to the estimated costs for implementation.

A. Urban Stormwater Interests and Related Comments

The methodology for determining the waste load allocations (WLAs) and reductions for MS4s has been revised. Notable changes include removing the set 25% reduction for all MS4s regardless of location. The need for a reduction is now based on an MS4's location within the drainage area and its own evaluation of its loading relative to the target areal loading used to derive the waste load allocation. See section 6.1.2 of the TMDL report for further explanation.

1. TSS above Lock & Dam 1 meet or exceed TMDL target	25, 31
Response: The revision to the methodology for MS4 WLAs now means that except for MS4s in the Crow River Watershed, MS4s above Lock & Dam 1 require no reduction for this TMDL. This is based on an analysis of reduction estimates pertaining to the Lower Crow River TMDL (see section 5.1.2).	
2. Boundaries for MS4 conveyance systems are inaccurate	25
Response: The level of rigor used with the allocation methodology is appropriate given the large geographic scale of this project and given the methodologies to be used to evaluate compliance. Also, the revised TMDL relates the MS4 allocation on an average mass per acre value "for their MS4-regulated area". Thus, determination of the exact boundaries can be done by the individual MS4s themselves.	
3. Particle size in stormwater runoff not considered	07, 25
Response: Particle-size evaluation is beyond the technical rigor of this TMDL. (Even for finer scale TMDLs this analysis has not been done.) To do so it would be necessary to estimate what heavier fraction is captured by Best Management Practices (BMPs) or is dropped out in streams, which are very different in terms of compliance with a WLA. This TMDL and its associated allocations are based on total suspended solids (TSS) and MS4s should determine their discharge based on that.	
4. Not using Minnesota River turbidity TMDL as input boundary; need to complete upstream "nested" TMDLs and/or fully account for load reductions	25
Response: While we did not attempt a rigorous accounting of upstream load reductions much greater consideration of upstream load reductions has been done in the revised TMDL. This, together with other changes, significantly affects (lessens) the obligations of many MS4s in terms of needed reductions.	
5. Improperly setting WLAs to flow conditions	25
Response: This TMDL, like many river TMDLs, includes tables that provide the balanced TMDL equations for a range of river conditions. However, the report emphasizes in multiple ways that achievement of the water quality standards is based on achieving a needed <i>average</i> loading. Also, in describing the daily TMDL allocation table the revised text acknowledges the points you raise regarding rainfall not equating to river flow.	
6. Improperly setting baseline year to 2002; unclear how to apply	06, 25, 31
Response: The revised TMDL no longer provides a baseline year. Compliance evaluation, where needed, shall now focus on what MS4s are estimating their loading to be, rather than reducing from some baseline year or condition.	
7. Not providing cost estimates for all sectors and sources; insufficient info for high MS4 cost; high cost is unreasonable	25, 31
Response: We believe the revised approach for MS4 WLAs and associated reductions largely addresses the concerns behind this comment. The cost of implementation discussion in the TMDL has been revised accordingly, though detail remains limited.	
8. Not providing model calibration or sensitivity analysis for urban discharges	07, 25
Response: We expect that the concern behind this comment is likely substantially addressed given revisions to the WLA methodology. Regardless, we believe the methodology used for MS4s was at an appropriate level of rigor given the extremely large scale at which this TMDL was done.	

9. 25% reduction for all MS4s arbitrary, ineffective, inequitable (given negligible contribution) and does not acknowledge variable loading among MS4s (including noncontributing--flow, TSS--areas)	03, 07, 09, 25, 31
Response: We believe the changes made to the MS4 WLA allocation methodology address this comment.	
10. Insufficient info and commitment to trading	25
Response: The changes made to the MS4 WLA allocation methodology revised approach may make this less of a need for MS4s. However, trading (particularly between WLA and LA) is something that will need to be developed program-wide, rather than within the confines of this TMDL. If and when that occurs it may have application to this TMDL.	
11. Not accounting for benefits of high-density development	25, 31
Response: Like practically all TMDLs created in the US the allocation methodology in this project is based on areal loading, not per capita loading.	
12. Should defer MS4 reductions till nonpoint source reductions documented and confirmed	25
Response: Permit compliance (including pace) is evaluated and overseen by the individual permit programs within the MPCA.	
13. Report fails to acknowledge stormwater BMPS not effective under high and very high flows	25
Response: First, as you have pointed out and the report now acknowledges, high flows are not synonymous with large storms. Beyond that we do not feel a TMDL report is an appropriate vehicle to evaluate BMPs and associated reduction efficiencies by storm size.	
14. Given large scale of area MPCA should seek proportional federal implementation funding	25
Response: Seeking of funds is a post-TMDL activity, albeit an important one. We are not in a position at this point to lay out any MPCA-led initiatives on this front.	
15. Revise or postpone TMDL till antidegradation rule completed	26
Response: This TMDL has taken long enough and we do not wish to further delay it.	
16. Faulty assumption that current MS4 loading is equal; use of literature values is inappropriate; use monitoring data where available	07, 35
Response: The revised methodology focuses more on allowable loads (WLAs) than reductions. Determining existing loads is largely left to MS4s to determine their compliance with WLAs. It would be fully appropriate at that stage to utilize available monitoring data. We believe for the large scale that this TMDL was done that use of established values reported in the literature is appropriate and resulted in a fair overall allocation.	
17. Faulty assumption that MS4 loading primarily driven by land use and are spatially distributed	07
Response: Please see response to comment #16.	
18. Discrepancy between TSS export coefficients used for current load estimate and monitoring data (by Met Council) loading used in modeling; request monitoring data be used for both	03, 07, 29, 34
Response: The revised methodology focuses more on development of the allowable loads. The TSS export coefficients used for any load estimates that are referred to are based on stream pour points. The MS4 Phase 2 General Permit applies to discharges from regulated MS4s (i.e., end of pipe/conveyance), not discharges at stream pour points.	
19. Figure 19 shows compliance for some MS4s (e.g., those in Nine Mile Creek Watershed)	07
Response: Please see response to comment #18.	

20. Request for more specificity for demonstrating MS4 WLA compliance	02, 35
Response: The MPCA has developed guidance for addressing TMDL requirements in MS4 General Permit applications and Stormwater Pollution Prevention Program documents (http://www.pca.state.mn.us/index.php/view-document.html?gid=19465). In addition, the MPCA has developed guidance to assist permittees with meeting reporting requirements in the permit. This guidance includes detailed discussion of appropriate models and other approaches for estimating load reductions associated with implementation of stormwater BMPs (http://www.pca.state.mn.us/sbiza7c).	
21. Need clarification in report regarding "Upper Mississippi" and "metrosshed"; unclear characterization of metro area loading	31, 33
Response: We have attempted to clarify the text where there may have been confusion.	
22. Request MS4 impervious acreage of all MS4s in Table 3 broken down, at least by tributary; clarify calculations in Table 3 regarding "MS4 Impervious Surfaces" and "MS4 Area (impervious and pervious areas)"; se of the terms "developed" and "impervious" land confusing	31
Response: This table (now renumbered as Table 4) is only intended as general descriptive background information and was not used for the TMDL calculations later in the report. Thus, we feel that it would add very little to break the information down further.	
23. Clarify calculations for four bullets on page 56	31
Response: These calculations are no longer a part of the revised MS4 WLA.	
24. Clarify/reconcile aggregate WLAs for MS4s with report language implying MS4s will each have a numeric WLA in their permit	02
Response: This section of the TMDL has been revised. Determination of compliance with WLAs is done by the appropriate MPCA permit program (Stormwater, in this case) and Phase II MS4s will not be subject to the regulatory requirements of this TMDL until the next permit. The stormwater program's guidance outlines crediting/accounting for a permittee's performance with respect to a categorical WLA.	
25. Need guidance on who takes credit where MS4 jurisdictions overlap	06
Response: This issue is addressed in the guidance being developed for meeting permit reporting requirements (see Comment 20). In general, permittees should claim credit for any applicable BMP that is achieving reductions from their MS4 or from any applicable BMP they helped implement (e.g., contributed funding toward the BMP). Permittees will be required, in their Annual Report, to identify the party that owns BMPs being claimed for credit. NOTE: an applicable BMP is a BMP that meets the baseline condition specified in a given TMDL report.	
26. Why weren't Wright Co. and Monticello Twp included in this TMDL?	32
Response: Neither of these entities meets the criteria used by the MPCA Stormwater program for regulated MS4 status. Therefore they are part of the load allocation.	
27. Need to provide additional allocation transfer language	05
Response: We have provided this in section 6.5.	
28. Need to reconcile project land area (both 28 and 26 M acres cited)	33
Response: The 26 million figure refers to acreage in Minnesota; the 28+ million figure includes Wisconsin, Iowa and South Dakota.	
29. Revise Figure 10 (color coding is unclear) and Table 2 in regards to the Battle Creek subwatershed TSS concentration	35
Response: The color for Battle Creek is yellow but appears darker because it overlies a light gray background. Its omission from Table 2 (now renumbered as Table 3) has been fixed.	

30. Provide stakeholders and commenters the appropriate GIS information to recreate Figure 15.	35
Response: This has been provided to you via e-mail; others may request this from the MPCA project contact.	
31. The loading assumptions of the South Metro Mississippi TMDL should be recalculated. The modeling of urban flows and discharges may be significantly flawed.	35
Response: The "Metroshed" was developed after the UMR-LP model was completed. Some areas of the Metroshed were specifically represented as individual tributaries to the model domain. Other areas of the Metroshed were within tributaries to the model domain such as the Minnesota River. Adjustments were made by the MPCA staff to allocations based on the boundaries of the Metroshed from existing model outputs. The MPCA staff is confident that existing modeling and stormwater assumptions, including more recent revisions, were more than sufficient to complete a robust TMDL.	
32. What is the definition of the "regulated MS4 boundaries"? Some MS4s have significant areas that have never drained to receiving waters outside the cities (landlocked areas). How are these areas addressed in relation to the MS4 boundaries in the TMDL?	35
Response: The TMDL basically used a surrogate of developed acreage to approximate the area currently served or to be served in the future by stormwater conveyances in order to provide waste load allocations. Compliance with the wasteload allocation, including what areas within your system that should be assessed, is administered and evaluated by the Stormwater program.	
33. Provide a definition, including timeline, for "new development" and "newly developed areas."	35
Response: New and newly developed simply mean areas where stormwater conveyances have been extended to (thus increasing the MS4-regulated area). The timing of ownership or operation of a conveyance by an MS4 entity (and, thus, how that pertains to compliance demonstration) is addressed by the stormwater permit and related Stormwater program guidance.	

B. Agricultural Interests and Related Comments

34. 10% natural background is invalid (too low)	01, 24
Response: This comment is addressed in the Findings of Fact.	
35. 1830 point of reference does not account for climate and ecosystem dynamics	24
Response: This comment is addressed in the Findings of Fact.	
36. Question sedimentation rate changes	24
Response: This comment is addressed in the Findings of Fact.	
37. Bluff and bank erosion are natural process that have always been active in MN R; therefore, part of natural background	24
Response: This comment is addressed in the Findings of Fact.	
38. Report does not divide up load allocation and provides no measurable and distinguishable evidence that nonpoint is not natural background	24
Response: This comment is addressed in the Findings of Fact.	
39. TMDL study does not account for components of turbidity, specifically VSS	20, 24
Response: This comment is addressed in the Findings of Fact.	
40. Tile drainage leads to less soil erosion in the field (but some erosion does occur at outlets). Do not need more regulations; just education.	08
Response: While it is likely true that tile drainage leads to less field erosion for row-cropped land there is conclusive evidence (Schottler et al. 2013) that tile drainage in many watersheds contributes to more in-channel erosion by increasing stream flow in the spring.	
41. Locks and dams may have benefitted submerged aquatic vegetation; delete inflammatory adjective "drastically" from text with regard to effect on meanders, backwater wetlands.	01
Response: We have changed "drastically" to "significantly" in the cited portion of section 2.0.	
42. Comments/questions regarding site-specific standard report; application of a standard to a given reach.	01
Response: The site specific standard is based on average of TSS concentrations of Lock and Dam 2 and 3. The standard did consider the variable morphology of Pools 2 and 3 and the vegetation growth potential of these pools. MPCA does not intend to develop TSS standards for multiple reaches in Pool 2. The comment is focusing on the upper portion of Pool 2 that has limited potential to settle sediment. Given the large load of sediment entering Pool 2, any "re-connected" depositional areas in upper Pool 2 would likely be overwhelmed in a short amount of time.	
43. Habitat restoration opportunities and locks/dams	01
Response: The cited language will be changing based on a separate comment (see comment #101). We're otherwise not seeing the value to debate your statements about the hypothetical situation of no locks & dams.	

44. How does the maintenance of the shipping channel affect sediment movement through the river system?	01
Response: The MPCA assumed that shipping would continue on the river system. Resuspension from barges was examined and determined to be a minor source of TSS impacting vegetation. Barges move on the main channel where bed sediment is mostly sand. Resuspended sand settles relatively quickly compared to finer particles that settle in off channel areas. The main channel is a poor habitat type for vegetation given the greater depth and high water velocity. Periodic dredging does occur on the main channel of the Mississippi and Minnesota Rivers. This is primarily sand material that settles in areas of lower velocity in the main channel. This sediment is removed from the system creating a depositional area for upstream sediment.	
45. Selected anecdotes representing one viewpoint should be deleted or balanced with other perspectives	01
Response: We have removed the first paragraph of section 2.1 in which an 1846 observation is quoted. It is notable, however, that a document written by Satish Gupta (Natural vs Anthropogenic Factors Affecting Sediment Production and Transport from the Minnesota River Basin to Lake Pepin, January 2011), which is cited by The Minnesota Soybean Growers Association and others in support of their contested-case hearing requests (pertains to comment #3 above), relies heavily on the use of selected anecdotes as part of the "weight of evidence."	
46. Discussion of development and population raises other questions regarding wastewater	01
Response: The section of the report the comment questions is intended as a brief introduction into the water quality history of the subject waterbodies. We believe it's neither fitting nor useful to provide extensive information on wastewater (which provides a very small contribution of TSS, the pollutant this TMDL addresses).	
47. Difficulty understanding narrative regarding sedimentation rate	01
Response: We believe the narrative is clear and is otherwise aided by Figure 2.	
48. Questions on the validity of the sediment core work	01
Response: Annual loads of sediment can certainly be variable and were likely variable 150 years ago. The sediment coring technique for sediments over 150 years old is more useful estimating average loading over multi-year periods such as decades. This information is very useful as a historical record of change. Areas upstream of Lake Pepin have accumulated sediment as stated. Lake Pepin was chosen for sediment coring since it was the major depositional area for the past couple hundred years while the area from the head of Lake Pepin to St. Paul served as the major depositional area prior to this period.	
49. Report focuses on agricultural land use changes but omits other sources (urbanization, roads, bridges, etc.)	01
Response: We believe the proportional focus on sources is congruent with the relative impact by sources on the subject water resources. It simply is not true that the report includes no mention of urban sources or construction. For example Section 3.1.1 states: <i>"During construction, however, per-acre sediment losses can exceed that of row crop agriculture. Also, increases in the amount of impervious surface through the construction of roads, parking lots, and buildings significantly alter site hydrology by decreasing infiltration, increasing surface runoff, and decreasing travel times such that peak and total flow volumes substantially increase. The altered hydrology can also impact stream morphology, leading to unstable streams, bank and channel erosion, siltation, and habitat modification. Urbanization also leads to a loss of riparian corridor vegetation, which can increase stream temperatures, reduce filtering capacity and destabilize stream banks."</i>	
50. Sedimentation history and dynamics in report is incomplete	01
Response: We believe the report provides a sufficient high-level overview of sedimentation history and dynamics and that the cited research was of a very high quality. It is important to note that this TMDL is an overlay TMDL that provides loading targets for upstream watersheds. Turbidity TMDLs for upstream watersheds including the Cannon and Minnesota Rivers will examine more detailed source contributions and sinks within the local watersheds.	

51. Precipitation comparisons across time periods is inaccurate or misleading	01
Response: It appears that you have misread the report. The report does not compare the period of 1895-2005 to 1990-2000. It compares 1895- <u>1905</u> to 1990-2000.	
52. Comparison of May-June precipitation raises questions; questioning of 10-fold increase in sediment load	01
Response: The report has been revised to cite the analysis by Schottler et al. (2013) which provides a very thorough analysis of May-June vs later season precipitation and related findings regarding land use changes and sediment loading. This work was comprehensive, rigorous and conclusive and we concur with the findings.	
53. The draft report includes numerous mentions of in-filling of Lake Pepin, which is a serious issue but not directly the subject of this TMDL report. However, we are especially concerned that MPCA would elevate the concerns of local residents, river scientists and environmental groups above the concerns of other stakeholders. This is a dangerous precedent and such language should be removed.	01
Response: While it was not the basis for the site-specific standard that the TMDL was based on, the in-filling of Lake Pepin very much <u>is</u> a focus of this report. Addressing multiple environmental problems (especially clearly related ones) is an efficient and responsible thing to do within studies and projects and should be encouraged. We have removed the specific reference to certain stakeholders since the main point can be made without that language. We strive to consider the perspectives of all stakeholders while carrying out our mission to protect and improve our environment and enhance human health.	
54. Disappearance of riverine lakes is a natural process; include discussion of riverine lakes	01
Response: There appears to be some confusion in this comment as well as others received regarding the appropriateness of TMDLs addressing a "natural process." Erosion and movement of sediment in many cases is a natural process. However, it is the <u>rate</u> that this occurs that is the issue. When erosion and deposition is <u>anthropogenically accelerated</u> then it is a concern that fully warrants it being addressed via a TMDL.	
55. Suggested rephrasing regarding loading variation	01
Response: We have made the suggested change.	
56. Need clarification regarding Lac Qui Parle sediment and upstream turbidity issues	01
Response: Please see response to comment #50. It is common for TMDLs to establish boundary conditions where sources are relatively minor and located a considerable distance upstream of the waterbody of concern. Watershed restoration and protection strategies (WRAPS) will be developed for watersheds upstream of Lac Qui Parle Dam.	
57. Focus on land use alone is incomplete/misleading; should explain soils differences	01
Response: We have added narrative to section 3.1 explaining the importance of soil type and slope and have indicated the watersheds within the project area where this most comes into play.	
58. No mention of Lake Byllesby effect on long-term TSS	01
Response: This report is not intended to describe or inventory all sources and sinks of sediment. Such detail can be done when HUC-8 (major watershed scale) projects are done.	
59. Out-of-date (2001) developed land acres used for metroshed	01
Response: The revised TMDL uses a more recent dataset (2011) for urban-related allocations.	
60. Cite data on factors causing TSS dip from St. Peter to Jordan	01
Response: The report text does cite a reference from which this conclusion is based. We don't believe it to be necessary to provide in the narrative the actual data or further detailed analysis.	

61. Report should refrain from direct comparisons of land uses and instead offer data and descriptions of areas based on what is known.	01
<p>Response: Watershed reports written in the US and elsewhere routinely compare loading by land use. It is a valid and informative thing to do and we believe this report has done this reasonably accurately given the large scale that it covers. The fact that both agricultural and urban land are very different and important to society is not a reason to refrain from providing basic information about where loading to the water resources comes from. Further, in your comment you suggest we include “TSS data from Minnesota State University, Mankato, showing TSS loads from agricultural basins <i>as low as</i> 27 pounds per acre” [emphasis added] and you state that “monitoring by the Minneapolis Parks Board verifies that approximately 225 pounds per acre of sediment is delivered from the Minneapolis area...” We have since asked the Minneapolis Parks and Recreation Board the origin of this 225 pound figure. They responded that in the June 2012 NPDES MS4 Phase I Permit Annual Report they have calculated monitoring data from four stormwater sites that yielded an approximated value of 215 pounds per acre (close to your cited value), but this does not represent what is delivered to surface water. Instead this is a <i>pre-treatment</i> value, meaning the estimated amount before treatment by street sweeping, dredging of ponds, grit chambers, infiltration basins, and other treatment BMPs. Thus, it appears you are making a contrast between a <i>minimum</i> agricultural value (rather than an average value) and an <i>inflated</i> urban value.</p>	
62. Supports site-specific standard used and predicts science will emerge supporting a less stringent standard	01
<p>Response: We appreciate your support for the standard.</p>	
63. General dissatisfaction with PCA's lack of valuing ag stakeholders' input and skewing of research	01
<p>Response: We stand by the research that was conducted and used to support this project. It is high quality work conducted by highly qualified scientists and is not biased. We understand how some stakeholders were frustrated. The dynamic that occurs for some of these larger-scale, high-profile projects can be a difficult one. MPCA may have often generalized some conclusions or spoke broadly, focusing on the problems and concerns. However, we often were faced with some vocal agricultural-sector stakeholders who persistently denied or deflected responsibility for agriculture’s role in the decline of water quality, insisting that the water quality problems are due to natural background sources and climate change. This comment letter and others received from agricultural representatives convey a similar stance. Given that the vast majority of agricultural land is exposed bare or nearly bare soil for up to seven months a year and that so much of the landscape has been hydrologically altered by a vast network of surface and subsurface drainage, it is simply not credible to assert that there is no (or minimal) agricultural connection to river water quality.</p>	
64. If 90% of sediment is from ravines, bluffs and banks (in the Blue Earth and LeSueur Rivers) how will changes in ag land management achieve WQ goals and, if so, at what cost?	01
<p>Response: A major focus in the recently drafted Sediment Strategy document is on hydrology, which agricultural land management can play a significant role in. By reducing the frequency and duration of high river flow events (i.e., achieving a new hydrologic equilibrium) the river channel can—over time (decades perhaps)—begin to stabilize. This takes various forms—less channel incision, narrowing of channel, re-establishment of bank vegetation, natural building of new flood plains, and more. These river geomorphological concepts are well established. The cost of actions may be high, but the cost of inaction in terms of resource loss is likewise high.</p>	
65. Report incorrectly assumes that the ratio of sediment delivered to Pepin compared to sediment delivered to the Miss R at MN R confluence has remained constant	20
<p>Response: The question is similar to other questions regarding the history of sedimentation of Lake Pepin and the importance of this history to the TMDL. The site specific standard applies is measured at Lock and Dams 2 and 3. Reducing suspended sediment loads from tributaries upstream of these locations is critical to meeting the site specific standard. Studies of sedimentation rates as suggested would require more time and money. These studies may not satisfy the commenter given expressed skepticism regarding the existing core studies. The budget for this TMDL (together with work on Lake Pepin nutrients) was the highest in the history of TMDLs in Minnesota. MPCA is confident that existing modeling and core studies were more than sufficient to complete a robust and scientifically-defensible TMDL.</p>	

<p>66. In summary, as proponents of clean water and conservation in general, we support the MPCA in their efforts to implement the Clean Water Act and the Minnesota Clean Water Legacy Act. We ask MPCA to edit the draft South Metro Mississippi River TSS TMDL report by removing all conflicting and subjective extraneous references outlined in these comments. We also ask MPCA to rewrite passages outlining stakeholder views divergent from those of the author in a more respectful manner. And finally, we ask that MPCA explore new approaches to working more collaboratively with stakeholder groups in future water quality planning efforts.</p>	<p>01</p>
<p>Response: We have made some of the requested changes identified in your comment letter. However, we disagree that this report outlines “stakeholder views divergent from those of the author” in any way that is disrespectful. However, we too welcome a more collaborative approach for water quality planning efforts and hope you would likewise consider approaching watershed projects differently (assuming you have not already done so in the three years since the comment period occurred). We can point to a project that was very respectful and productive that can serve as an example: the implementation plan development for the Carver Creek - Bevens Creek Turbidity TMDL (which happens to be in the South Metro Mississippi River drainage area). This effort was led by staff from the Carver County Water Management Organization. County staff convened a small group made up predominantly of local farmers and agricultural representatives (in addition to SWCD staff and MS4 representatives for one of the meetings). At no time did any of the stakeholders deny or deflect agricultural influence on the water quality problems, claim the problems are overwhelmed by precipitation changes, or cite selected or out-of-context research findings that suggested a non-agricultural explanation for water quality problems. Instead they offered a set of pragmatic actions towards addressing the turbidity problem that formed the basis of the implementation plan. These actions included wetland restoration, conservation tillage, buffer strips, controlled drainage, repurposing marginal cropland, and addressing road ditch encroachment.</p>	

C. Wastewater and Related Comments

67. Will MPCA be notifying WI dischargers regarding WLAs?	12
Response: No. Follow-up discussions with WDNR have since occurred to effectively “hand off” this report for WDNR use.	
68. Remove MESERB names from SAC list in appendix C	30
Response: Requested edit has been made.	
69. Provide assurance regarding option of pollutant point-nonpoint trading	30
Response: Trading provisions are unnecessary for wastewater sources. A mechanism is provided for future growth as long as the permit effluent limit is equal to or more restrictive than 32 mg/L water quality standard. All continuous dischargers with 30 mg/L minimum secondary treatment effluent limits and will be able to expand their wasteload allocations in the future.	
70. Provide some accommodation for lagoon facilities to allow for growth	30
Response: Stabilization pond wasteload allocations include 50% reserve capacity to accommodate future growth.	
71. Unclear why lagoon facilities which do not discharge during summer are included in this TMDL	28
Response: The TSS water quality standard is applicable from June through September. Stabilization ponds are authorized to discharge from March 1 st through June 30 th and from September 1 st through December 31 st in the northern portion of the watershed. In the southern portion of the watershed stabilization ponds are authorized to discharge from March 1 st through June 15 th and from September 15 th through December 31 st . Wasteload allocations were developed for stabilization pond WWTPs because their authorized discharge periods overlap with the water quality standard’s applicability period.	
72. Mismatch having allocations for high flow since atypical of June-September compliance period	30
Response: EPA requests that the TMDL and associated allocations consider the full range of flow conditions, thus high flow targets are included. However, the report is otherwise clear regarding achievement of the site-specific standard and the averaging methodology that will be used for that evaluation.	
73. Keep assurance provided on p. 82 regarding no further ratcheting down on permitted sources	30
Response: We have not changed that language.	
74. Provide verification that reserve capacity will be available to accommodate 30% growth in metro by 2040	29
Response: The TMDL report includes a future growth mechanism that allows for wasteload allocation expansions for all permitted dischargers with permitted TSS effluent limits that are equal to or more restrictive than the 32 mg/L water quality standard. This TMDL does not establish any impediment to the future expansion the Metropolitan Council’s wastewater treatment capacity	
75. Why 32 and not 30 mg/L (which includes MOS) for WW facilities?	12
Response: Wastewater point source wasteload allocations for continuously discharging facilities were calculated based on the 30 mg/L calendar month average permit limit and the facility design flow. Controlled Discharge WWTP WLAs were calculated based on the 45 mg/L permit limit for Minnesota facilities and the 60 mg/L permit limit for Wisconsin facilities. A 50% reserve capacity was also included for these dischargers since their WLAs are not eligible for future expansion. The 32 mg/L water quality standard was only used to calculate wasteload allocations for industrial dischargers whose permits do not currently include TSS effluent limits or monitoring requirements. These are mostly non-contact cooling water and reverse osmosis reject water discharges whose effluent are believed to contain irreducible quantities of TSS.	
76. Is future growth (reserve capacity) of 46 MT/yr just for MN facilities? (section 6.8) If both	12

states then indicate how divided between two states. Otherwise WI requests reserve capacity as well.	
Response: Revisions were made to include Wisconsin.	
77. Suggest added text to clarify that 6.8 and 6.9 apply only to MN facilities	12
Response: These sections are now renumbered 6.5 and 6.6, respectively. Additional language has been added to the report to clarify applicability to Wisconsin and Minnesota.	
78. Request for file used to calculate WLAs for WI dischargers	12
Response: This has been provided.	
79. Appendix A table of WW WLAs should include design flow and TSS concentration	12
Response: We have instead provided you (WDNR) a copy of our spreadsheets with all the needed information.	
80. Allocation methodology using calendar month values is not congruent with long-term nature of the standard	28
Response: The wasteload allocations are consistent with TMDL modeling.	

D. Load Allocation Methodology Comments

81. Research supports LA breakdown into field, non-field and natural background; need this breakdown since affects implementation plans (plus related comments)	03
<p>Response: US EPA does not require that the load allocation be separated into subcategories. However, by having used the sediment research findings as we did, this TMDL has gone beyond what most TMDLs are able to provide: an overall approximation of what is natural background and what is not. This along with the supporting research provides a solid defense to the many commenters who wish to categorize nearly all of the load as natural background. Regarding your request, we disagree with the premise that further breakdown and fine-tuning of the LA will somehow lead to better implementation plans. What truly informs implementation plans is the description of sources, the modeling scenarios, the supporting research and professional judgment. The Sediment Strategy report that MPCA has since developed already builds off this information and recommends a primary focus on actions that will reduce the frequency and duration of channel-forming flows (which lead to non-field contributions). This report should then inform implementation planning at the watershed project scale. Other aspects of this comment are addressed in the Findings of Fact.</p>	
82. A separate allocation for internal loading should be made; key players will take action if included (plus specific related report edits)	38
<p>Response: We have made revisions to the tables including the internal load component of the load allocation as well as have made edits to the narrative regarding internal loading.</p>	

E. Reasonable Assurance Comments

83. Portion of TSS load due to tile line discharge (scour, head-cutting, ravine erosion) should be deemed a point source and be in the WLA.	03, 22, 37
Response: We fully recognize that altered hydrology causes and contributes to excess TSS in various watersheds within the project drainage area. To date the MPCA's programs (including regulatory compliance/permitting and TMDL) have not viewed these as point/permitted sources.	
84. MPCA should exercise its authority under Minn. R. 7050.0210, subp. 2 to regulate nonpoint pollution	03, 22
Response: The comment is noted. The TMDL does cite this authority among the contingency requirements to be implemented if nonpoint source targets are not met.	
85. MPCA should exercise its authority under Minn. R. 7050.0185, subp. 1 regarding nondegradation of waters to regulate nonpoint pollution	36
Response: This comment is noted. Nondegradation rules are currently undergoing revision at the MPCA. In the future we do not rule out evaluating application of this rule toward nonpoint pollution.	
86. MPCA should exercise its authority under Minn. Stat. 115.03(e) to regulate nonpoint pollution	37
Response: This comment is noted. In the future we do not rule out evaluating application of this citation toward nonpoint pollution. It should be noted that this citation is limited to general powers and duties. Review and interpretation of specific applicability would need to be done as part of any evaluation.	
87. Apply existing authorities cited in section 7.5 of TMDL (applicable to various agencies, LGUs)	03, 22, 37
Response: The existing authorities cited in the TMDL (now renumbered as section 7.3) are provided as contingency requirements to be implemented if nonpoint source targets are not met. The MPCA notes that some authorities are for agencies/entities other than the MPCA.	
88. MPCA should use its authority to classify flow as a pollutant per Minn. Stat. 115.01, Subd. 13, to add support for local jurisdictions to address flow-related TSS sources	37
Response: This TMDL was based on a listing of violation of the turbidity standard. Subsequent to that assessment a site-specific standard based on TSS was proposed and approved and the TMDL and all allocations were based on that parameter. The MPCA is not willing at this time to redo the whole process using a different pollutant parameter. Further, a TSS-based TMDL does not in any way preclude establishing flow-related targets, which was done in the Sediment Strategy document referenced previously.	
89. Amend TMDL to include aggressive but achievable milestones, benchmarks, timelines	14, 38
Response: These elements are laid out in the Sediment Strategy document cited above.	
90. Add to TMDL the MPCA's intention to pursue with other state agencies and LGUs development of a coordinating structure to ensure actions are identified (incl. gaps analysis to ID reductions via existing laws), carried out, measured, monitored and reported. Recommend MOU among agencies, plus governor, to enforce existing laws; include commitment to adequately staff effort.	03, 37, 38
Response: This TMDL was done at a very large geographic scale. The Sediment Strategy document was our primary planning effort at this scale and it includes a proposal for a Sediment Reduction Task Force, which will take on some evaluation-related tasks. However, we expect that more detailed strategy development, targeting and prioritization, and accountability evaluation to occur at the HUC-8 (major watershed) scale, which we believe to be an appropriate and effective scale/approach and in line with the overall direction that has been made by state agencies and which is provided in the accountability-related provisions recently added to the Clean Water Legacy Act.	

91. Educate farmers on needed reductions and hold them accountable.	13, 14
Response: Education and communication are important steps in the overall process. The MPCA has undertaken a part of this by producing and publicizing the Sediment Strategy document (as well as other reports and efforts). We believe it to be more effective for other entities to lead more direct education efforts for farmers, however. Regarding accountability we refer to our response to comment #90 above. The new accountability provisions of the Clean Water Legacy Act include the following: <i>"Beginning July 1, 2016, and every other year thereafter, the Pollution Control Agency must report on its Web site the progress toward implementation milestones and water quality goals for all adopted TMDL's..."</i> Such information will serve to highlight whether or not progress is being made by agricultural sources.	
92. Do not pay for practices required by law and require compliance before access to conservation resources	13, 14
Response: This is a policy-level issue beyond the scope of this specific TMDL.	
93. Include development of a MN R Basin Commission in the reasonable assurance section	37
Response: It is more appropriate to undertake consideration of this under the umbrella of the Minnesota River TMDL and its related planning and ongoing activities. Also, such consideration should be a deliberative process involving the many potential members of such an entity.	
94. Either take WI's approach of instituting ag performance standards or adopt the provision of the MN Water Sustainability Framework dealing with controlling flow and pollutants at the discharge points of the 81 major watersheds	22
Response: While these may be effective approaches it is our understanding that either one would require legislative action in order to be enacted.	
95. TMDL lacks reasonable assurance that needed ag controls will occur (needed reductions countered by trend data, RA elements fall short, no viable contingency plan, MPCA does not commit to using authority, inadequate funding, need gap analysis)	29, 31, 40
Response: The US EPA provided a preliminary review of the TMDL and did not find the reasonable assurance section to be inadequate. In addition, since the time that the TMDL was completed and the public notice took place there have been significant changes to the Clean Water Legacy Act. Provisions added, which will largely apply at the HUC-8 level, are aimed at outlining contents of Watershed Restoration and Protection Strategy (WRAPS) reports to, among other things, ensure sources are identified and the magnitude of implementation needed to restore and protect waters are outlined. In addition, the MPCA will have an ongoing reporting requirement, which we referenced in the response to comment #91 above. This process will serve to provide an ongoing evaluation of gaps and progress made as well as improve accountability at all levels.	
96. TMDL lacks reasonable assurance that needed point source (MS4s) controls will occur (aggregate WLA prevents ability to determine compliance)	40
Response: An aggregate or categorical WLA is appropriate for such a large-scale TMDL where the detail on individual loading is very limited. In addition, as the report makes clear, the overall load contribution of MS4s is very minor compared to other sources. Also, we believe revisions to the methodology for the MS4 WLAs in the revised TMDL as compared to the original draft will serve to make compliance determination more clear.	

F. Implementation-Related Comments

As indicated in the introduction since the drafting of the TMDL report a separate report entitled “Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River” has been created. That document is available at: <http://www.pca.state.mn.us/ark8qrf>. Implementation-related information in both the drafts of the Minnesota River Turbidity TMDL and this TMDL were used in the drafting of this Sediment Strategy report. Because this document now exists the implementation section in the South Metro TMDL has been revised and simplified and references the Sediment Strategy.

97. Return landscape and river course to its original natural form between Mdo-Te (Mendota) and Pilot Knob	41
Response: The Sediment Strategy document only provides a high-level overview of implementation strategies. Such specific projects as this one will need to be considered, designed and implemented working with a range of partners at various levels of government.	
98. Expand language regarding perennials in sect 7.2.2	39
Response: As indicated above the TMDL implementation section has been simplified. However, the Sediment Strategy recognizes the importance of this and includes several references for the expanded and increased use of perennial vegetation.	
99. Target funding for ag to outcome-based solutions	39
Response: How funds are targeted is beyond the scope of a TMDL and perhaps more in the statewide policy realm.	
100. Remove box elder trees from buffer zone; plant prairie grasses; taper banks	23
Response: This may very well be a very effective approach where appropriate. Neither the TMDL nor the Sediment Strategy is not drilling down to the level of specific buffer zone techniques for specific settings, however. This is best evaluated at the local level.	
101. Change language to expand habitat restoration opportunities (p. 5)	16
Response: We have made the suggested change.	
102. Change language regarding bluff stabilization (p. 75)	16
Response: This section has been greatly simplified given the creation of the Sediment Strategy document and, thus, specifics are no longer provided in the TMDL report.	
103. State policy issues with other state agencies should include Critical Area policy (p. 83)	16
Response: As indicated above the TMDL implementation section has been simplified. The Sediment Strategy draft does not reference this policy at this time.	
104. Should use a headwaters first approach	19
Response: While there is a theoretical basis to start work in the headwaters and work down, we feel there is much work throughout the drainage area that should be done. In particular, an emphasis on reducing the hydrologic impacts to the river system requires efforts all across the drainage area. This is addressed more fully in the Sediment Strategy document. Also, it should be acknowledged that this study is not launching the beginning of implementation; implementation has been going on for decades by a myriad of entities. This effort will hopefully bring attention to, accelerate and focus efforts.	
105. Need funds for community capacity studies and community engagement	36
Response: State funding for local projects post-TMDL is generally provided via grants from the Board of Water and Soil Resources. These activities are discussed in the Sediment Strategy and are eligible for funding as part of an implementation effort.	

106. Target conservation funding towards highest loading	13, 14
Response: This is a major emphasis in state funding.	
107. MPCA Clean Water Legacy Fund-derived budget dedicates only a small fraction towards restoration efforts	27
Response: The comment appears to assume that the MPCA is the only agency that disburses Clean Water Land and Legacy Amendment implementation funds. This is not true. The bulk of implementation funds are received and disbursed by the Board of Water and Soil Resources and the Public Facilities Authority. For further information on use and breakdown of Legacy funds see: http://www.legacy.leg.mn/	
108. Sequencing of monitoring/planning of HUC-8 watersheds should be based on relative loading, not MPCA's schedule. Timeframe for implementation (in Table 11) too protracted, especially for high-loading watersheds.	06, 14
Response: The watershed planning schedule shown in the referenced table (now renumbered as Table 10) was developed outside of this TMDL based on a range of factors. The column labeled "implementation" showing years is misleading since implementation is ongoing at the local level to varying degrees and certainly any "new" implementation initiatives can and should proceed under the umbrella of this larger effort. That column has been removed in the revised report.	
109. Set benchmarks for reductions and regularly assess progress	11
Response: This is the intent outlined in the Sediment Strategy document.	
110. What efforts will be made to incorporate or account for long established local efforts in the MPCA implementation plan?	09
Response: We generally view it going the opposite way—the Sediment Strategy should inform/influence local plans.	
111. MN R should be prioritized over other basins for implementation	29
Response: The Sediment Strategy has a major emphasis on the MN R.	
112. Restore rapids at Coon Rapids	23
Response: Neither the TMDL nor the Sediment Strategy is not drilling down to the level of detail. This is best evaluated at the local level.	
113. Lower speed limits for boats	23
Response: A brief mention of this is made in the report (in reference to internal loading).	
114. 25% reduction by 2020 extremely aggressive, especially for MS4s	05
Response: See Section A of this document regarding updates to the TMDL regarding MS4s. The Sediment Strategy document provides the overall timeline and, yes, is aggressive.	

G. General Comments

115. Statements of general support (need, goals, approach)	Various
Response: We appreciate this support and appreciate the time all commenters took to express their opinions in writing and/or attend public meetings, whether to express support or otherwise.	
116. Desire for more or better education of the public on this issue	Various
Response: This is a very worthy goal. Education can take many forms and is an important prerequisite for moving forward on much of the actual on-the-ground actions.	
117. Don't send TMDL to EPA. Don't react endlessly to their picayune legalistic comments.	22
Response: Understanding that the context of this comment was within expressed frustration over the difficulty with addressing nonpoint sources, we can only say that we in no way view EPA as a roadblock in terms of completion or approval of this TMDL. Nor do we feel the content of the TMDL will be compromised due to their review.	
118. Reconcile or explain use of different model scenarios in MN R and SMM TMDLs	18
Response: The HSPF model predicted that Minnesota River Scenario 4 would result in Minnesota River TSS load reductions near Jordan in the range of 40 to 60 percent, depending on the year and the season, which is what is needed for the South Metro Mississippi River TSS TMDL. So the modeling predicted that reaching South Metro Mississippi River targets would involve the changes in Scenario 4 while to meet Minnesota River targets, the changes needed are closer to scenario 5 levels.	
119. More government employees than other participants at some meetings	21
Response: It can be a challenge to get local citizens to meetings and other public events. Some creative ideas have been offered and/or attempted. Some of those cost money (offering food) and are generally deemed an unallowable expense when suggested/requested.	
120. Mis-use of Legacy Funds by agencies; shouldn't go to government agencies and their employees	21
Response: We disagree with your characterization of this issue. The legislature apportions funds between implementation actions and for staff and activities that inform and support implementation.	
121. Is purpose of the report to propose a draft TMDL to set a performance standard or provide a basis for an implementation plan?	06
Response: TMDLs are required by the Federal Clean Water Act as a step towards restoring impaired waters. We hope that they also highlight the importance of the resource and the need to restore it and form the basis for action, which may take various forms (plans, policies, funding).	
122. Would be helpful to provide a big picture timeline (relative, not date-specific)	06
Response: The Sediment Strategy report provides an overall timeline with respect to implementation.	
123. Would be more efficient to address multiple pollutants rather than just one (TSS)	29
Response: Yes, it would. That is how we are proceeding with new watershed projects that are launched. This project was linked with the Lake Pepin phosphorus impairment at one time, but was split off in the interest of making progress while the phosphorus impairment was delayed.	
124. Clarify approval status of site-specific standard	05
Response: This is stated in Section 4.1.1—approved by EPA in November 2010. The MPCA can use either of two different paths for a site-specific standard, include it in our triennial update of MN Rule 701 (as we are doing with the Lake Pepin phosphorus standard) or proceed on a separate public process (as was done for this TSS site-specific standard).	

125. General concern about TMDL inconsistency	05
Response: Variability in TMDL approaches occurs for various reasons (scale, local partner input, types of sources, new information or policies, budgets and others). The more recently adopted "Watershed Approach" done primarily at the major watershed scale should serve to limit variability in approach.	
126. Recommend continued monitoring at Jordon	10
Response: It's our understanding that this long-term station will remain.	
127. Request TMDL provide more info on how TSS loads calculated for WI rivers needing 20% reduction	12
Response: The overall reduction targets by basin were evaluated by the project team as part of the scenario runs for the modeling. Much of the scenario process is professional judgment and learning as scenarios are run and refined.	