



Minnesota Center for Environmental Advocacy

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Re: Initial Comments of the Minnesota Center for Environmental Advocacy on Reasonable Assurance for Nonpoint Source Controls, Lake Pepin TMDL

Lake Pepin TMDL needs to provide reasonable assurance that nonpoint source controls will be implemented.

EPA requires that when a TMDL is developed for waters impaired by both point and nonpoint sources, and the wasteload allocation is based on an assumption that nonpoint source load reductions will occur; the TMDL must include reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.¹

This is because, under the Clean Water Act, the only federally enforceable controls are those for point sources through the NPDES permitting process. In order to allocate loads among both nonpoint and point sources, “there must be reasonable assurances that nonpoint source reduction will in fact be achieved. Where there are not reasonable assurances, under the CWA, the entire load reduction must be assigned to point sources.”²

This is the case for the Lake Pepin TMDL for excess nutrients currently being drafted.

¹ United States Environmental Protection Agency, *Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992*, available at: <http://www.epa.gov/owow/tmdl/guidance/final52002.html>

² United States Environmental Protection Agency, *Guidance for Water Quality-Based Decisions: The TMDL Process*, Office of Water, EPA 440/4-91-001, April, 1991, Chapter Two, available at: <http://www.epa.gov/OWOW/tmdl/decisions/>

EPA's expectations for reasonable assurance for nonpoint sources.

EPA does not currently have regulations governing the content of the reasonable assurance portion of a TMDL, but has indicated their expectations in:

- Providing a four part test to evaluate the reasonable assurances section of TMDLs specifying that the control actions or management measures must be:
 - specific to the pollutant and waterbody for which the TMDL is being established,
 - implemented as expeditiously as practicable,
 - accomplished through a reliable delivery system, and
 - supported by adequate funding.³
- Specifying the content of reasonable assurance and implementation framework for nonpoint sources for the Chesapeake Bay TMDL to include:
 - 1. Tributary strategies to identify controls needed to meet TMDL allocations
 - 2. Evaluation of existing programmatic, funding, and technical capacity to fully implement tributary strategy
 - 3. Identification of gaps in current programs and local capacity to achieve the needed controls
 - 4. Demonstrated commitment to systematically fill gaps/build program capacity –to meet specific, iterative, short-term (1-2 year) milestones with demonstration of implementation and/or pollutant reductions
 - 5. Commit to track/monitor/assess progress at set times – adaptive management
 - 6. Accept contingency requirements if milestones are not met

Concerns with MPCA's current approach to reasonable assurance and implementation planning sections

To MCEA's knowledge, the MPCA has not previously written a reasonable assurance section satisfying these requirements into a TMDL, but often does refer to reasonable assurance in the implementation framework or planning section of a TMDL. MCEA has reviewed most draft and final Minnesota TMDLs, and has found that the elements provided in the reasonable assurance and/or implementation sections in Minnesota TMDLs, and often in the full implementation plans that follow TMDL approval, are too sketchy to actually guide effective implementation. Typically, MPCA's TMDLs include:

- A very general description of the components and types of actions that could be part of an implementation plan. The actions described are often a list of existing voluntary programs for various longstanding agricultural Best Management Practices (BMPs),

³ *Reasonable Assurance for Sources for Which an NPDES Permit is Not Required*, Federal Register, Volume 65, No. 135, Thursday, July 13, 2000, Rules and Regulations, pages 43599-43600.

- A list of local governments and watershed organizations that should be responsible for implementing the actions,
- A list of (or reference to the existence of) relevant local water or landscape plans that also include the two previous items, and
- Some mention that additional funding will be needed and sometimes a list of potential funding sources.

Some TMDLs do include a detailed discussion of one or more of these points (e.g., the Lower Vermillion River TMDL Agricultural BMP Section 7.1.3), but only one, in our view, has met EPA’s four part test—the Lake Independence Excess Nutrient TMDL prepared by the Three Rivers Park District and Pioneer-Sarah Creek Watershed Commission.⁴

Creating a better framework for reasonable assurance in current TMDLS

To meet EPA’s four-part test for adequate reasonable assurance, it is necessary for the TMDL to provide answers to these questions:

What control actions or management measures will effectuate the needed pollutant reductions in the impaired waterbody? To answer this, the TMDL needs to provide information on sources (and/or source categories) of pollution, how the load is delivered to the affected waterbody, how much reduction is needed from the source or source category, what measures are effective in achieving these load reductions, and (generally) where the measures need to be implemented in the watershed of the impaired water. If a water quality model is available, it should be run to demonstrate the expected effectiveness of various measures.

What is the timeline for implementing the above measures, and what are the interim programmatic and water quality benchmarks or milestones in gauging progress? EPA’s test specifies that “expeditious” means within five years when practicable, and specifies that the reasonable assurances for the Chesapeake Bay TMDL should have 1-2 year milestones.

Who will implement the actions and do these entities have the necessary time, experience and capacity to do so? List organizations and describe their commitment to implementing specific load reduction activities, their record in implementing effective strategies, and how they expect to meet future expected demands given other core roles and responsibilities.

How much will nonpoint source implementation cost, and where is this money going to come from? EPA’s test requires states to identify adequate clean water program funding to implement the load allocation, and if such funding is not currently adequate, to explain when it will be and provide a schedule by which it will be obtained. Examples are

⁴ Available at: <http://www.pca.state.mn.us/publications/reports/tmdl-lakeindependence-phosphorus.pdf>

needed of the cost of implementing each activity type, along with the expected cost to implement measures in target areas at the scale and scope needed to reduce loads.

Recommendations for Reasonable Assurance Specific to the Lake Pepin TMDL

I. Implement existing state laws relative to nonpoint sources of sediment and nutrients.

- A. Local governments should effectively administer and enforce shoreland standards to reduce sediment and nutrient loading.

Minnesota's current shoreland rules (last updated in 1989) provide a number of measures intended to protect and improve water quality. These include establishing reasonable zoning provisions (e.g. set backs, lot widths, etc) for different classes of waters (e.g. general development lakes), shoreland vegetation management standards, and agricultural use standards. New statewide minimum standards are almost finalized and should be promulgated within the next year. They include numerous improved management standards, tools, and options to better protect water quality.⁵

The basic agricultural use standards require a 50 foot uncultivated buffer along shorelands.⁶ A recent analysis by the Board of Water and Soil Resources (BWSR) suggests widespread non-compliance with this requirement.

MCEA recommends that the model used by Dodge County to achieve compliance with this standard be applied in all counties with over 30% of the land area in cultivation, partially or wholly within the watershed of Lake Pepin.

In Dodge County, compliance officer Melissa DeVetter began field inspections in April 2007, found 198 farms not in compliance, and reports that as of February 2009, 70 percent of these farms are already in compliance, or working toward compliance. DeVetter reports that this success was achieved at very little administrative cost (3-5 percent of her time in Spring and Fall).⁷

MCEA recommends that the Lake Pepin Model be run with appropriate inputs to estimate the sediment and nutrient load reductions achievable through full implementation of the 50-foot shoreland buffer rule. The results should be used to provide the basis for a two-year milestone and implementation activity in the reasonable assurance portion of the Lake Pepin TMDL.

⁵ Up to date information is available at:

http://www.dnr.state.mn.us/waters/watermgmt_section/shoreland/shoreland_rules_update_project.html

⁶ Minn. R. 6120.3300, Subp. 7.

⁷ *Agricultural Practices in Shoreland Areas, A Report on the 2009 Forums*, P. Otterson, Minnesota Department of Natural Resources, June 23, 2009, page 20. Available online at:

http://files.dnr.state.mn.us/waters/watermgmt_section/shoreland/agricultural_practices_in_shoreland_areas_1.pdf

The statewide standards are also minimum standards. It is well within the authority of local governments to use their shoreland standards to require buffers larger than the statewide 50 foot minimum and/or to create classes of waters where buffers greater than 50 foot are the standard.

MCEA recommends that the reasonable assurance section of the TMDL state that the full implementation plan for Lake Pepin will identify areas on the landscape with high sediment loading and devise a process whereby local governments would use their zoning authorities to adopt more restrictive shoreland buffer standards through use of an overlay district or through creation of a high sediment loading district with necessary controls and prioritize agricultural BMP state and federal cost share funds to such areas.

B. Local government should adopt, effectively administer and enforce excessive soil loss ordinances.

Minnesota law (enacted 1990) prohibits excessive soil loss (Minn. Stat. 103F.415), but the efficacy of this protection is unknown. “Excessive soil loss” is defined as loss that is greater than the soil loss limits. (Minn. Stat. 103F.401, Subd. 6.) Soil loss limits are in turn defined as those allowed by local regulations. (Minn. Stat. 103F.401, Subd. 11.) Local regulations in turn are “encouraged” (Minn. Stat. 103F.405, Subd. 1).

Unfortunately, the Minnesota Board of Water and Soil Resources (BWSR) does not maintain a database or list of Minnesota counties that have adopted a soil loss ordinance pursuant to Minn. Stat. 103F.405.⁸ BWSR last updated its model soil loss ordinance in August, 1994. In notes accompanying the new model, BWSR stated that only 7 counties had adopted a soil loss ordinance (four years following the statute’s enactment), but that 55 of the 79 BWSR-approved local water management plans prepared by counties stated that a soil loss ordinance would be considered or definitively adopted by the year 2000. These notes also relate that the Soil Conservation Service (later re-named the Natural Resources Conservation Service or NRCS) estimated an annual average erosion rate of 6.5 tons per acre in 1982—a rate exceeding soil loss tolerance (“T”) for every soil type in the state. The model ordinance itself incorporated performance standards for soil loss of 2 times “T” for 1994, 1.5 times “T” for 2004, and “T” for 2014. Had these been adhered to, Minnesota would now be at about 1.25 “T” statewide.⁹

MCEA recommends that the reasonable assurance and implementation planning sections of the Lake Pepin TMDL establish an immediate review of ordinance adoption, compliance with adopted ordinances, and current soil loss

⁸ Personal communication with Steve Woods, email dated June 11, 2009.

⁹ *Model Ordinance for Agricultural Erosion Control*, Soil Conservation Advisory Committee, Minnesota Board of Water and Soil Resources, August 1994, attached.

rates by county. Further, the Lake Pepin model should be run with appropriate inputs to estimate sediment loading reductions achieved by lowering average annual soil loss from current levels to “T” for each county partially (area-weighted) or wholly within the Lake Pepin watershed. The full implementation plan should:

- **specify a process and timeline for achieving soil loss of “T,”**
- **identify riparian areas where sedimentation will remain high even after “T” rates of soil loss are achieved; and**
- **establish a process and timeline to treat these riparian areas.**

C. Comprehensive assessment and planning for the role of surface and subsurface drainage in reducing sediment and nutrient loading.

Agricultural drainage and subsequent changes to hydrology are often found to be substantial direct and indirect contributors to turbidity and nutrient impairments in TMDLs. However, implementation activities related to drainage and the resulting hydrologic changes are not discussed in detail even though these turbidity TMDLs use load duration curves which attribute most of the loads and needed load reductions to higher flows.

Minnesota drainage law requires a one rod (16 ½ foot) perennial buffer along ditches subsequent to any proceeding to construct, establish, improve or otherwise affect a drainage system such that viewers must be appointed to assess benefits and damages. (Minn. Stat. 103E.021.) A study conducted by BWSR in 2006 reports 17,311 miles of public drainage ditch in Minnesota, of which 2,138 miles are required to have a 1-rod buffer (12.3%). Of these, 72% had the required buffers.¹⁰

MCEA recommends that the reasonable assurance and implementation framework in the Lake Pepin TMDL establish a process and timeline by which to:

- **Insure compliance for the 28 % of ditch miles where buffers are required but lacking;**
- **Identify and prioritize ditch systems that contribute most to impairments based on field review and water quality monitoring and modeling;**
- **Identify areas where 1-rod buffers alone will not achieve desired sediment reduction benefits and further controls such as side inlets controls are needed;**
- **Systematically evaluate the condition and use of legal drainage systems and determine whether actions are needed to help achieve necessary load reductions (e.g., improvement, abandonment, or repair).**

¹⁰ *Public Drainage Ditch Buffer Study*, Minnesota Board of Water and Soil Resources, February 2006, available online at: <http://www.bwsr.state.mn.us/aboutbwsr/publications/bufferstudyweb.pdf>

- **Systematically evaluate the condition and use of road ditches for agricultural drainage and determine whether actions are needed to help achieve necessary load reductions (right-of-way enforcement).**

There is good evidence that drainage and land use changes have increased annual water yield, increased peak flows, compressed peak flow periods, and extended time periods of low flow and no flow compared to background conditions. These current conditions contribute substantially to ravine and streambank erosion. To address this more broadly than public ditch-related actions discussed above:

MCEA recommends that the implementation planning framework for the Lake Pepin TMDL include a commitment to develop a plan to evaluate and modify hydrologic conditions for water quality improvement, including evaluation of current hydrologic conditions, prioritizing and targeting areas for implementation activities (strategic water retention, reduced conveyance, etc.), and implementing strategies to moderate hydrology such as land use changes, tillage practices, and widespread distributed rainwater storage.

D. Assess administration by delegated counties/MPCA of animal manure landspreading and open lot provisions of Minnesota's feedlot rules.

Minnesota rules Chapter 7020 govern animal feeding operations (both large CAFOs and medium to small sized AFOs). Adopted in 2000, these rules contain facility design and siting standards and restrictions on the rate, timing and location of manure application to fields. MCEA conducted a programmatic review of the administration of the feedlot rules in 2005, and found very little in the way of effective oversight and enforcement. (Updated review will be available July 2009.)

The areas of greatest surface water quality concern from Minnesota's animal feedlots are runoff from "open lots" and runoff from land application of manure. Animal manure was found by EPA's Science Advisory Board to be a major source of phosphorus loads to the Gulf of Mexico.¹¹ This report discusses the intensification of animal production, with a resulting "large-scale, one-way transfer of nutrients from grain-to animal-producing areas" which in turn results in enormous excesses of phosphorus available for land application. Areas of central and south-central Minnesota have among the highest rates of this accumulation in the entire Mississippi-Achafalaya River Basin.¹²

¹¹ *Hypoxia in the Northern Gulf of Mexico*, EPA Science Advisory Board, December 2007, EPA-SAB-08-003, available online at:

<http://yosemite.epa.gov/sab/sabproduct.nsf/WebReportsbyYearBOARD!OpenView&Start=1&Count=800&Expand=2#2>

¹² *Ibid* at pages 168-175.

The importance of this source of phosphorus loading to the Gulf is also stressed by SPARROW modeling (attached) conducted by Alexander et al. (2000 *Nature*).

MCEA recommends that the reasonable assurance and implementation framework sections of the Lake Pepin TMDL contain a process and timeline by which to assess compliance with the open lot runoff abatement and land application provisions of Minnesota's feedlot rules, Minn. R. Chapter 7020. This assessment should result in remediation recommendations with an associated timeline and funding plan that identifies and addresses those operations posing the highest phosphorus loadings to the Lake Pepin watershed.

II. Prepare a gap analysis to define areas where existing regulatory controls are likely to be insufficient to achieve necessary load reductions.

Although full implementation of the existing regulatory controls on agricultural sources is likely to achieve a portion of the needed reductions in sediment and phosphorus loadings to Lake Pepin, it is unlikely to achieve all of it. For example, none of the statewide statutes and rules discussed above specifically address ravines, or the land use practices that exacerbate their formation and delivered loads, such as location of tile outlets or farming too close to the edge. For this reason:

MCEA recommends that the reasonable assurance and implementation planning framework sections of the Lake Pepin TMDL commit to a process to review these gaps, develop recommendations for further local zoning districts and standards specific to high-loading areas, and encourage and fund local adoption and implementation of the recommendations.

III. Aggressively target agricultural BMPs—geographically, by most effective practice, and by financial need.

In general, agricultural BMP subsidy programs aimed at conservation do fairly little to target cost-share to the most critical water quality improvement areas and specific practices, nor are they directed (and made to stretch further) by financial need of the producer. Given the sheer size of the Lake Pepin Watershed, the number of agricultural operations within it, the rather gross-scale model for the TMDL, and reasons of social equity—it is vital that we do more than has been done for many Minnesota TMDLs in the past to aggressively target restoration efforts and funds.

This overwhelming need to target agricultural controls in utilizing USDA programs was a key finding of the National Academies of Science in its recent report on Mississippi River water quality and the limitations of the federal Clean Water Act:

Effective management of nutrient and sediment inputs and other water quality impacts from agricultural sources will require site-

specific, targeted approaches involving best management practices. Existing USDA programs provide vehicles for implementing nonpoint source controls in agriculture, but they will require closer coordination with the EPA and state water quality agencies to realize their full potential for improving water quality. . . .It is imperative that these USDA conservation programs be aggressively targeted to help achieve water quality improvements in the Mississippi River and its tributaries.¹³

Minnesota farmers receive the 7th highest amount of federal USDA conservation program funds in the nation, totaling over \$1.2 billion from 1995-2006. Of this amount, an estimated \$523,203,000 was spent in the Lake Pepin watershed. (See attached.)

This need to target agricultural subsidies is no less important for state program dollars. MCEA reviewed the grants made by BWSR for restoration (TMDL implementation) activities pursuant to Clean Water Legacy appropriations, and found little evidence that funded projects were closely targeted by either practice or location. Evaluation measures were often counting exercises (feet of fencing to be installed) rather than being based on water quality improvement. With enactment of the Legacy Amendment in November 2008, roughly \$80 million per year in sales tax revenues will be directed to clean water objectives. This has led to many calls by legislators and others for greater accountability for water quality outcomes.

As of this writing, the Lake Pepin draft TMDL is not sufficiently detailed as to the highest loading sites, land use practices causing such loads, or successful solutions to serve as the basis for allocating restoration, protection or cost-share funds from state or federal programs.

MCEA recommends that the reasonable assurance and implementation planning framework portions of the Lake Pepin TMDL specify a process and timeline by which basin-level load reduction goals will be translated into an action plan that can direct agricultural BMP spending by practices needed, locations, funding programs to be tapped, further research needed (modeling, etc.), application of new and ongoing research (such as LiDAR), and public and private organizations responsible for implementing each piece of the plan. The plan must also address:

- **gaps in current management activities, organizational capacity, and funding needed to achieve load reductions;**
- **timelines and milestones for implementation activities;**
- **ways by which to monitor the degree of their application/acceptability in addition to monitoring their effectiveness; and**

¹³ *Mississippi River Water Quality and the Clean Water Act*, National Research Council of the National Academies, The National Academies Press, 2008, page 9.

- **actions to be taken if implementation activities are not effective or are applied at such a limited scope that loads are not reduced enough by established milestones.**

Agricultural BMP subsidies are not targeted by financial need, but of course would go further if they were. In fact, some of the Minnesota rules discussed above require the general public to finance 75% of the costs of farmer compliance with mandated pollution abatement provisions. If it does not, the farmer need not comply. An example is Minn. Stat. 116.07, Subd. 7., which provides that unless an upgrade is needed to correct an immediate health threat, the MPCA may not require an animal feedlot (up to 300 animal units) operator to spend more than \$3,000 on the upgrade, unless a public subsidy of 75 % is available.

The 2008 federal farm bill restricts payments to farmers with a gross farm income limit of **\$750,000** per year, averaged over the 3 previous years. The same piece of legislation appropriates funds for the food stamp program (Supplemental Nutrition Assistance Program). In Minnesota, the income cap for food stamp eligibility is **\$21,588** (gross income) per year for a family of 3.

It should be noted that median *net* farm income in Minnesota has risen dramatically to \$105,431 annually (2007). Yet the largest source of water quality restoration funding in the state draws the money granted to farmers to implement BMPs from the state sales tax—paid by Minnesotans of all income levels.

To the extent that available funding to implement agricultural BMPs in the Lake Pepin watershed is insufficient to pay for necessary load reductions, MCEA recommends that the Lake Pepin implementation planning stakeholder group to discuss and make recommendations relative to:

- **targeting agricultural BMP cost-share funds by financial need; and**
- **development of agricultural performance standards independent of cost share availability.**