

TMDL Decision Document

TMDL: Revisions to Minnesota Statewide Mercury Total Maximum Daily Load

Date of U.S. EPA Decision: April 3, 2008

Background

On March 27, 2007, U.S. EPA approved two mercury TMDLs, the northeast and southwest regional TMDLs, submitted by the state of Minnesota. The approval addressed a total of 511 lake and river reach impairments¹ as identified in Category 5 of Minnesota's 2006 Integrated Report.

The approved TMDLs address water bodies not meeting the aquatic consumption designated use due to an exceedance of numeric water column water quality standards or elevated levels of total mercury per kilogram of fish, or parts per million, fish tissue mercury concentration. The target for both the northeast and southwest regional TMDLs is 0.2 milligrams of total mercury per kilogram of fish, or parts per million (mg/kg or ppm), fish tissue mercury concentration, which is a surrogate for the numeric water column water quality standards: 1.3 nanograms per liter (ng/L) for the Lake Superior Basin, and 6.9 ng/L for the rest of the State.

A load allocation for the TMDLs was established and approved. The primary nonpoint source identified in the TMDLs was atmospheric deposition. One wasteload allocation was established for each regional TMDL. Point sources, including stormwater, municipal wastewater treatment facilities, and industrial dischargers, that impact the impaired lakes and river reaches addressed by the TMDLs are subject to the applicable regional wasteload allocation. An explicit margin of safety was established for the southwest region's TMDL while an implicit margin of safety was used for the northeast region's TMDL.

For purposes of this decision document, the northeast and southwest regional TMDLs approved by U.S. EPA on March 27, 2007, will be referred to as the "original TMDL"².

On February 5, 2008, the State of Minnesota submitted for review and approval revisions to the original TMDL. The State requested that U.S. EPA approve revisions to Appendices A and B of the original TMDL. On March 25, 2008, the Minnesota Pollution Control Agency (MPCA) submitted additional information for U.S. EPA's consideration in our decision to approve revisions to Appendices A and B of the original TMDL. For purposes of this decision document, the February 5 and March 25, 2008 submittals, collectively, will be referred to as the "revised TMDL".

¹ For purposes of this decision document, impairments are counted as assessment unit/pollutant combinations. Therefore, if an assessment unit has more than one pollutant identified, i.e., mercury in water column and mercury in fish tissue, two impairments would be counted. Also, if a river or lake is divided into multiple assessment units, each assessment unit is counted individually.

² A copy of U.S. EPA's March 27, 2007 approval letter and decision document for the original TMDL is included in this decision as Attachment 1.

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Appendix A of the original TMDL identified the specific water bodies, i.e., lakes and river reaches, to which the original TMDL applied, and Appendix B identified facilities subject to a National Pollution Discharge Elimination System (NPDES) permit to which the original TMDL applied. The revised TMDL does not change any other component of the original TMDL. The only revisions being considered by U.S. EPA in this decision are revisions to Appendices A and B. U.S. EPA is not considering revisions to any other element or component of the original TMDL.

Impairment/Pollutant of Concern and TMDL Target

As did the original TMDL, the revised TMDL identifies lakes and river reaches not meeting the aquatic consumption designated use due to an exceedance of numeric water column water quality standard or elevated levels of total mercury per kilogram of fish, or parts per million, fish tissue mercury concentration.

Assessment: U.S. EPA finds that the revised TMDL submitted by the State of Minnesota adequately identifies the pollutant of concern. The target in the original TMDL, 0.2 milligrams of total mercury per kilogram of fish, or parts per million (mg/kg or ppm) fish tissue mercury concentration, remains unchanged by this decision and is applicable to the lakes and river reaches in Appendix A of the revised TMDL as identified in Table 1 of this decision document.

Identification of Water Bodies:

In response to public comments received during the public notice and comment period for the original TMDL, Minnesota decided to remove some of the lakes and river reaches from the public notice draft of the original TMDL. The public comments raised concern that not all water bodies included in the public notice draft of the original TMDL would meet water quality standards. In the original TMDL, reduction factors that are necessary to achieve the target fish tissue mercury concentration in the standard size top predator fish were calculated by the State. These reduction factors were calculated using the TMDL target fish tissue mercury concentration of 0.2 mg/kg and the 90th percentile fish tissue mercury concentrations in the standard size top predator fish. A mercury fish tissue concentration of 0.572 mg/kg was the highest concentration used in calculating the regional reduction factors. Public comments raised concern that if fish tissue concentrations in a water body exceed 0.572 mg/kg the water body would not meet water quality standards and therefore, public comments recommended removing water bodies from the original TMDL that had fish tissue concentrations higher than 0.572 mg/kg. In response to these public comments, Minnesota decided to remove the lake and river reaches included in Appendix A of the public notice draft of the original TMDL that had a maximum mercury concentration for a fish size class mean greater than 0.572 mg/kg.

As a result of the comments received during the public notice and comment period for the original TMDL, Minnesota revised its assessment methodology for assessment of fish for human

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consumption based on fish contaminant data.³ Using the data requirements and the determination of an impaired condition as explained in Minnesota's September 2007 assessment methodology and the mercury fish tissue concentration of 0.572 mg/kg (used in calculating the regional reduction factors in the original TMDL), the State assessed the lakes and river reaches removed from Appendix A of the public notice draft of the original TMDL and other readily available mercury fish tissue data.

Other readily available mercury fish tissue data includes data that was not available to the State for consideration during the development of the original TMDL but is now available. As part of Minnesota's monitoring and assessment program, new data, including fish tissue data, is continually being collected. New data is usually considered in impairment determinations during the two year integrated reporting cycle required by U.S. EPA. Since the State began developing the original TMDL, new mercury impairments were added to Category 5 of Minnesota's Integrated Report or are being proposed as new impairments in Minnesota's 2008 Integrated Report currently under review by U.S. EPA.⁴ The State's assessment of lakes and river reaches for inclusion in the revised TMDL considered mercury fish tissue data used in the development of the original TMDL and data that became available for consideration since the development of the original TMDL.

For purposes of developing the revised TMDL, there are three possible outcomes of the State's assessment of mercury fish tissue data.

1. A lake or river reach is included in the revised TMDL if the mercury fish tissue concentration met the criteria in the September 2007 assessment methodology for an impaired water and was less than 0.572 mg/kg.
2. A lake or river reach is placed in Category 2 or 3 of Minnesota's Integrated Report⁵ due to insufficient data. The September 2007 assessment methodology includes data requirement criteria that may not have been met, thereby placing a water body in either Category 2 or 3.
3. A lake or river reach is placed in Category 5 of Minnesota's Integrated Report⁶ if the mercury fish tissue concentration met the criteria in the September 2007 assessment methodology for an impaired water and was greater than 0.572 mg/kg.

³ Refer to "Guidance Manual for Assessing the Quality of Minnesota Surface Waters for the Determination of Impairment, 305(b) Report and 303(d) List", Minnesota Pollution Control Agency, September 2007, Section IX.C.

⁴ Minnesota submitted Category 5 of their 2008 Integrated Report to U.S. EPA on February 26, 2008 for review and approval.

⁵ Refer to "Guidance Manual for Assessing the Quality of Minnesota Surface Waters for the Determination of Impairment, 305(b) Report and 303(d) List", Minnesota Pollution Control Agency, September 2007, page 37, for specific descriptions of Minnesota's Integrated Report categories.

⁶ Id.

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The revised TMDL addresses a total of 998 lake and river reach mercury impairments. The original TMDL addressed a total of 511 lake and river reach mercury impairments. Of these 511 impairments addressed in the original TMDL, 49 lake and river reach mercury impairments are being removed and placed in either Category 2, 3, or 5 of Minnesota's Integrated Report. Of the 511 impairments addressed in the original TMDL, 20 lakes or river reaches are being assigned new or additional assessment unit identification numbers. After consideration of the mercury impairments included in Category 5 of Minnesota's 2006 Integrated Report, Minnesota is adding 470 lake and river reach mercury impairments to the revised TMDL that were not included in the original TMDL. Minnesota is also adding 40 lake and river reach mercury impairments to the revised TMDL that were not identified as impaired in Minnesota's 2006 Integrated Report but are identified as impaired in Minnesota's draft 2008 Integrated Report.

Assessment: U.S. EPA finds that the revised TMDL submitted by the State of Minnesota adequately identifies the lakes and river reaches. Table 1 of this decision document identifies the lakes and river reaches that, by this decision, are being approved as lakes and river reaches included in the revised TMDL and addressed by the original TMDL.

Forty of the impairments identified in Table 1 of this decision document and in the revised TMDL are currently not included as impaired in Minnesota's most recently approved Integrated Report, i.e., the 2006 Integrated Report Category 5. U.S. EPA believes it is reasonable for Minnesota to include these lake and river reach impairments in the revised TMDL. With the exception of one criteria, the State's assessment of these lakes and river reaches for inclusion in the TMDL is consistent with the assessment necessary for making an impairment decision for Minnesota's Integrated Report. The one exception is the criteria that a water body having a maximum mercury concentration for a fish size class mean greater than 0.572 mg/kg would not be included in the revised TMDL. The public had the opportunity to review and comment on the decision by the State to include these 40 impairments in the revised TMDL. No comments were received specific to the inclusion of these impairments in the revised TMDL. The State has also demonstrated its intent to include these 40 impairments in its 2008 Integrated Report by combining the public notice and comment for the revised TMDL and the 2008 Integrated Report. The State has included these impairments in its submittal of the 2008 Integrated Report to U.S. EPA for review and approval. Table 2 of this decision document identifies the 40 lake and river reach impairments that are currently not included in an approved Integrated Report yet are approved in the revised TMDL by this decision.

There are also 49 lake and river reach impairments that Minnesota included in the original TMDL that Minnesota is now removing from the revised TMDL. These impairments are being removed because there was not enough data to meet the criteria in the 2007 assessment methodology or because the lakes or river reaches may not meet water quality standards because the maximum mercury concentration for the fish size class mean is greater than 0.572 mg/kg. U.S. EPA finds the removal of these impairments reasonable and consistent with the 2007 assessment methodology and the original TMDL. Table 3 of this decision document identifies these 49 lake and river reach impairments.

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Twenty of the water bodies included in the original TMDL have been assigned new or additional assessment unit identification numbers or lake identification numbers. Assessment units for a river usually extend from one significant tributary to another or from the headwaters to the first significant tributary, and assessment units can be further divided when a significant morphological feature exists. Minnesota uses the National Hydrography Dataset (NHD) to define assessment units. The scale of the NHD can change which may also result in changes to assessment units. Minnesota also uses the Minnesota Department of Natural Resources (MDNR) Public Waters Inventory, Bulletin 25, as a source of lake identifications. Periodically, MDNR updates this inventory which may result in changes to assessment units. These most current assessment units do not match the assessment units included in Minnesota's approved 2006 Integrated Report. Table 4 of this decision document identifies the lake or river reach as it was included in the original TMDL and in the approved 2006 Integrated Report. Table 4 also identifies the new assessment unit or additional assessment units as included in the revised TMDL and included in this decision. Minnesota included information in the revised TMDL that connected the new assessment units or additional assessment units to the original assessment unit. The original assessment units were included in the original TMDL and in the approved 2006 Integrated Report. The new assessment units and additional assessment units were included in the public notice and comment version of the revised TMDL and no comments specific to the assessment unit identification numbers were received. U.S. EPA finds it reasonable to include the most current assessment unit identifications in the revised TMDL. The State provided sufficient information to U.S. EPA and the public to make a connection between the most current assessment unit identification numbers and the assessment unit identification numbers included in the original TMDL.

Other Changes to Appendix A

Two regions were defined in the original TMDL, the northeast and the southwest. Each impairment addressed in the original TMDL is subject to the loading capacity and allocations established for one of the regions. During the development of the revised TMDL the State identified six (6) river reach impairments in the original TMDL that were identified with the incorrect region. In the revised TMDL, Minnesota is correcting these errors.

Assessment: U.S. EPA finds it reasonable for the State to make corrections to the original TMDL. There is nothing in the statute or implementing regulations that prohibit States from revising TMDL and correcting errors. The regional boundaries in the original TMDL were established by the State's consideration of variations in fish tissue concentrations and how these concentrations were impacted by land cover and use. The bioavailability of mercury in wetlands and forested lands versus cultivated lands was considered by the State in determining that ecoregion boundaries would be used to define the regions for the original TMDL. The corrections to the original TMDL do not change the ecoregion boundaries or the boundaries of the two regions used in the original TMDL. Table 5 of this decision document identifies the river reach impairments that Minnesota is correcting in the revised TMDL.

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Priority Ranking for new impairments in the revised TMDL

The State's target schedule dates included in its Integrated Report reflects the State's priority ranking. In establishing the priority ranking, i.e., the target schedule for developing TMDLs, the State considered factors such as severity of the pollutant, available monitoring data and targeted monitoring schedule, designated use of the water body, and available resources. Minnesota's 2006 Integrated Report scheduled most of the impaired water bodies addressed by the revised TMDL for development starting in 1999, 2002, 2004, or 2006 and completion expected between 2011 and 2021.

Assessment: U.S. EPA finds that the priority ranking used in the original TMDL is applicable to the revised TMDL and is reasonable.

Revised Appendix B

With the addition of new impairments the State revised Appendix B of the original TMDL. Two permits⁷ that were included in the original TMDL have been terminated and are not included in the revised Appendix B submitted by the State or Table 6 of this decision document. The applicable regional TMDL wasteload allocation for two permits that were included in the original TMDL is being corrected in the revised TMDL.⁸ Thirty-nine permits were either converted from individual permit to general permits or from general permits to individual permits. The revised TMDL includes current permit numbers for these 39 permits.

Assessment: Table 6 of this decision document identifies the NPDES facilities and associated permit numbers that are included in the revised TMDL and need to be consistent with the applicable wasteload allocations established in the original TMDL. Table 7 of this decision document identifies the 39 permits that were either converted to general or individual permits. As previously mentioned in this decision document, there is nothing in the statute or implementing regulations that prohibit a State from revising a TMDL or correcting errors. U.S. EPA finds it reasonable and acceptable for the State to update and revise Appendix B to the reflect the current status of permits, current permit numbers, make corrections to the applicable regional wasteload allocations, and add new permits to reflect the addition of new lake and river reach impairments.

Public Participation

The revised TMDL was available to the public for review and comment during a 30-day public

⁷ The two terminated permits are MN0030627, Hibbing WWTP North Plant, northeast regional TMDL and MN0021326, Waverly WWTP, southwest regional TMDL.

⁸ The applicable regional TMDL wasteload allocation for permits MN0000973, CMP Sartell LLC-Sartell Mill, and MN0024562, Randall WWTP, in the original TMDL was the northeast wasteload allocation for both of these permits. The revised TMDL identifies the southwest wasteload allocation as the applicable regional TMDL wasteload allocation for both of these permits.

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notice and comment period, October 8, 2007 to November 7, 2007. By letter dated September 11, 2007, and distributed to an extensive mailing list, MPCA announced the public notice and comment period, announcing public meetings, and identifying the changes included in the revised TMDL. The State held nine public informational meetings throughout the state. Public participation for the revised TMDL coincided with public participation for Minnesota's 2008 draft Integrated Report. Twenty-four comments were received during the public notice and comment period. None of the comments received were on the revised TMDL.

Assessment: In reviewing the revised TMDL, U.S. EPA reviewed the public participation package submitted by the State in its February 5, 2008 correspondence. U.S. EPA reviewed the public comments, the State's summary of the comments, the State's responses to these comments, and the information made available to the public for review and comment and announcing the 30-day public notice and comment period. U.S. EPA finds that the State of Minnesota's public participation process provided the public with a reasonable opportunity to review and provide comments for the revised TMDL.

Submittal Letter

Assessment: Minnesota submitted a correspondence dated February 5, 2008 signed by Michael J. Sandusky, Director, Environmental Analysis and Outcome Division, addressed to Kevin Pierard, Branch Chief, Watersheds & Wetlands Branch, enclosing revisions to Appendices A and B to the Mercury TMDL approved by U.S. EPA in March 2007. The correspondence asks for "approval of the revisions to Appendices A and B of the already approved mercury TMDL."

Conclusion

After a full and complete review of the information submitted to U.S. EPA on February 5, 2008 and March 25, 2008, and other supporting documents, U.S. EPA finds that pursuant to Section 303(d) of the Clean Water Act, 33 U.S.C. Section 1313(D), and U.S. EPA's implementing regulations at 40 CFR Part 130, the revised TMDL satisfies the elements of an approvable TMDL. This approval addresses a total of 998 lake and river reach impairments,⁹ including 501 new assessment units not addressed in the original TMDL, as identified in Category 5 of Minnesota's 2006 Integrated Report and in the revised TMDL.

U.S. EPA's approval of the revised TMDL extends to the lake and river reach impairments identified in Table 1 of this decision document, with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. U.S. EPA is taking no action to approve or disapprove the State's mercury TMDLs with respect to those portions of

⁹ 998 lake and river reach impairments = 511 assessment unit/pollutant combinations from the original TMDL + 26 assessment unit/pollutant combinations due to assessment units in original TMDL being split – 49 assessment unit/pollutant combinations that are being removed from the original TMDL + 470 assessment unit/pollutant combinations that are identified in Category 5 of Minnesota's Integrated Report + 40 assessment unit/pollutant combinations currently not identified as impaired in Category 5 of Minnesota's Integrated Report

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the waters at this time. U.S. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.

U.S. EPA's approval of the revised TMDL does not extend to any element of the original TMDL unless it is specifically discussed in this decision document. U.S. EPA's approval of the revised TMDL does not approve any additions of impaired waters or removal of impaired waters from Minnesota's Integrated Report. U.S. EPA will issue a separate decision specific to Minnesota's 2008 Integrated Report that will address the addition or removal of impaired waters from the Integrated Report.