

Arthur Baldwin

I've worked in taconite mines for 23 years, and I have most recently worked on permitting and starting up a sulfide gold mine in South Carolina as the technical services superintendent. As a retired mining engineer, I am increasingly alarmed by iron mining industry practices, and I feel that it's important to speak up against the current bio-accumulative effects of legacy sulfide mine pollution, and the threat of copper-nickel mining which is 100 times worse than iron mining.

In my retirement, I am inspired to make hand drums as a tool for meditation and community building via drum circles. And I am dedicating each one of the drums I make to one of Minnesota's 10,000 lakes in an effort to raise awareness of the impaired water quality from legacy mine pollution. The threat of poisoning by methyl mercury to the fish we love to catch and eat, and the threat to wild rice from sulfate pollution is real, and permanent. Trading our beloved outdoor water recreation and livelihoods is not worth permitting a predatory mining company's resource piracy.

Further, the threat isn't looming on the horizon. It's already here in the form of sulfide minerals associated with taconite ore. The tailings containing sulfides end up dissolved in the discharge waters from all of the taconite plants. These sulfide minerals left untreated, are oxidized, and mobilize the heavy metals in the sediments in the lakes and rivers downstream from the tailings dams. This 50 years of legacy mine pollution, reaching from Swan Lake to Silver Bay, needs to be cleaned up now, and water quality restored to the impaired downstream lakes and rivers.

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

In the Matter of the Proposed Rules of
the Pollution Control Agency Amending
the Sulfate Water Quality Standard
Applicable to Wild Rice and Identification
of Wild Rice Rivers, Minnesota Rules
parts 7050.0130, 7050.0220, 7050.0224,
7050.0470, 7050.0471, 7053.0135,
7053.0205, and 7053.0406

**REPORT OF THE CHIEF
ADMINISTRATIVE LAW JUDGE**

This matter came before the Chief Administrative Law Judge pursuant to the provisions of Minn. Stat. § 14.15, subd. 3 (2016), and Minn. R. 1400.2240, subp. 4 (2017). These authorities require that the Chief Administrative Law Judge review an Administrative Law Judge's findings that a proposed agency rule should not be approved.

Based upon a review of the record in this proceeding, the Chief Administrative Law Judge agrees with and hereby **CONCURS** with all disapprovals contained in the Report of the Administrative Law Judge dated January 9, 2018.

1. The Chief Administrative Law Judge **CONCURS** that the following proposed rules are **DISAPPROVED**:

- a. Proposed **Minn. R. 7050.0220, subps. 3a, 4a, 5a, 6a**
- b. Proposed **Minn. R. 7050.0224, subp. 2**
- c. Proposed **Minn. R. 7050.0224, subp. 5, A**
- d. Proposed **Minn. R. 7050.0224, subp. 5, B (1)**
- e. Proposed **Minn. R. 7050.0224, subp. 5, C**
- f. Proposed **Minn. R. 7050.0224, subp. 6**
- g. Proposed **Minn. R. 7050.0471, subps. 3 through 9**

2. The following changes to rules as originally proposed are **DISAPPROVED**:

- a. Proposed changes to **Minn. R. 7050.0224, subp. 5, B (1)**
- b. Proposed changed to **Minn. R. 7050.0224, subps. 5, E, F**

c. Proposed changes to **Minn. R. 7050.0224, subp. 5, B (2)**

The changes or actions necessary for approval of the disapproved rules and repeals are as identified in the Administrative Law Judge's Report.

If the Department elects not to correct the defects associated with the repeal of the existing rules and the defects associated with the proposed rules, the Department must submit the proposed rules to the Legislative Coordinating Commission and the House of Representatives and Senate policy committees with primary jurisdiction over state governmental operations, for review under Minn. Stat. § 14.15, subd. 4 (2016).

Dated: January 11, 2018

A handwritten signature in black ink, appearing to read 'TLP', with a long horizontal line extending to the right.

TAMMY L. PUST
Chief Administrative Law Judge

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**REPORT OF THE
ADMINISTRATIVE LAW JUDGE**

Administrative Law Judge LauraSue Schlatter conducted several public hearings on this rulemaking proceeding at various locations throughout the state. The hearings were held on the following dates at the following locations: the Harold Stassen Building in St. Paul, Minnesota, on October 23, 2017; the Mesabi Range College in Virginia, Minnesota, on October 24, 2017; Bemidji State University in Bemidji, Minnesota, on October 25, 2017; the Fond du Lac Tribal Community College in Cloquet, Minnesota, on October 26, 2017; and Central Lakes Community College in Brainerd, Minnesota, on October 30, 2017. Judge Schlatter held an additional hearing at the offices of the Minnesota Pollution Control Agency (MPCA or Agency) in St. Paul, Minnesota, on November 2, 2017. This hearing was also broadcast via interactive video conference to the MPCA's regional offices in Detroit Lakes, Duluth, Mankato, Marshall, and Rochester. All of the hearings continued until everyone present had an opportunity to be heard concerning the proposed rules.¹

The MPCA proposes to amend the rules governing Minnesota's water quality standard to protect wild rice from excess sulfate. The existing standard limits sulfate to 10 milligrams per liter in water used for the production of wild rice. The proposed amendments would establish an equation to determine the protective level of sulfate in each "wild rice water" based on the concentration of iron and organic carbon in the sediment. When sulfate in the water interacts with iron and organic carbon in the sediment, they can form sulfide, which the MPCA has determined is toxic to wild rice.² The proposed rules would limit sulfide in the sediment of a wild rice water to 120 micrograms per liter; identify approximately 1,300 lakes, rivers, and streams as wild rice waters; establish a process for the future identification of wild rice waters; and describe

¹ Throughout this Report, the terms "rule" and "rules," as well as the terms "standard" and "standards," are used interchangeably and in a manner intended to reflect typical usage while encompassing the fact that the rulemaking proceeding addresses a proposed rule made up of various identified parts.

² Ex. D (SONAR) at 12.

the sampling and analytical methods to characterize sediment and determine porewater sulfide.³

The public hearings and this Report are part of a rulemaking process governed by the Minnesota Administrative Procedure Act.⁴ The Minnesota Legislature designed the rulemaking process to ensure that state agencies meet all of the requirements that Minnesota law specifies for adopting rules.⁵ The rulemaking process also includes a hearing when 25 or more persons request one or when ordered by the agency.⁶

The hearings were conducted to allow the Agency representatives and the Administrative Law Judge reviewing the proposed rules to hear public comment regarding the impact of the proposed rules and what changes might be appropriate.⁷ Further, the hearing process provided the general public an opportunity to review, discuss, and critique the proposed rules.

The Agency must establish that the proposed rules are within the Agency's statutory authority; necessary and reasonable; follow from compliance with the required procedures; and that any modifications that the Agency made after the proposed rules were initially published in the *State Register* are within the scope of the matter that was originally announced.⁸

Adonis Neblett, General Counsel, represented the MPCA at the hearing. The members of the MPCA's hearing panel (Agency Panel) included Carol Nankivel, Rulemaking Coordinator; Shannon Lotthammer, Division Director for the Environmental Analysis and Outcomes Division; Ed Swain, Research Scientist with the Environmental Analysis and Outcomes Division; Catherine Neuschler, Water Assessment Section Manager; Gerald Blaha, Research Scientist with the Water Quality Standards Unit; Elizabeth Kaufenberg, Research Scientist with the Effluent Limits Unit; Phillip Monso, Research Scientist with the Water Quality Standards Unit; Scott Kyser, Engineer with the Effluent Limits Unit; and Debra Klooz, a Paralegal in the Legal Services unit.

The MPCA received thousands of written comments on the proposed rules between August 21, 2017 and November 2, 2017. Approximately 57 people attended the first public hearing on October 23rd in St. Paul, Minnesota and signed the hearing register. Fourteen members of the public provided oral comments regarding the proposed rules during the October 23rd hearing and one public exhibit was received during that hearing.⁹

Approximately 88 people attended the October 24th hearing in Virginia, Minnesota and signed the hearing register. Twenty-five members of the public provided oral

³ Porewater is the water present in saturated sediment between the solid particles of minerals and organic matter.

⁴ Minn. Stat. §§ 14.131-.20 (2016).

⁵ See Minn. Stat. §§ 14.05-.20 (2016); Minn. R. 1400.2000-.2240 (2017).

⁶ See Minn. Stat. § 14.25 (2016).

⁷ See Minn. Stat. § 14.14; Minn. R. 1400.2210-.2230.

⁸ Minn. Stat. §§ 14.05, 14.23, 14.25, 14.50 (2016).

⁹ Exhibit (Ex.) 1000.

comments regarding the proposed rules during the October 24th hearing. Twelve public exhibits¹⁰ and two Agency exhibits¹¹ were received during the October 24th hearing.

Approximately 44 people attended the October 25th hearing in Bemidji, Minnesota, and signed the hearing register. Fourteen members of the public provided oral comments regarding the proposed rules during the October 25th hearing and two public exhibits were received during that hearing.¹²

Approximately 89 people attended the October 26th hearing in Cloquet, Minnesota, and signed the hearing register. Twenty-seven members of the public provided oral comments regarding the proposed rules during the October 26th hearing and nine written public exhibits were received during that hearing.¹³

Approximately 53 people attended the October 30th hearing in Brainerd, Minnesota, and signed the hearing register. Twenty members of the public provided oral comments regarding the proposed rules during the October 30th hearing and nine public exhibits were received during that hearing.¹⁴

Approximately 26 people attended the November 2nd hearing in St. Paul, Minnesota, or watched via interactive video conference at one of the MPCA's regional offices in Detroit Lakes, Duluth, Mankato, Marshall, and Rochester. Eight members of the public provided oral comments regarding the proposed rules during the November 2nd hearing and three public exhibits were received during that hearing.¹⁵

In total, 38 exhibits were received during the public hearings.¹⁶

After the close of the last of the hearings, the Administrative Law Judge kept the rulemaking record open for an additional 20 calendar days, until November 22, 2017, to allow interested persons and the Agency to submit written comments. Thereafter, the record remained open for an additional five business days, until December 1, 2017, to allow interested persons and the Agency to file written responses to any comments received during the initial comment period.¹⁷

Approximately 1,500 written comments were received from members of the public after the hearings, along with two responses from the Agency.¹⁸ To aid the public in participating in this matter, all comments were posted at the Office of Administrative

¹⁰ Exs. 1001-1012.

¹¹ Exs. 1013-1014.

¹² Exs. 1015-1016.

¹³ Exs. 1017-1024A.

¹⁴ Exs. 1025-1033.

¹⁵ Exs. 1033-1036.

¹⁶ Exs. 1000-1036, which includes Exs. 1024 and 1024A.

¹⁷ See Minn. Stat. § 14.15, subd. 1.

¹⁸ MPCA Response to Public Comments (Nov. 22, 2017) and MPCA Rebuttal Response to Public Comments (Dec. 1, 2017).

Hearings' Rulemaking eComments website. In total, the Administrative Law Judge received more than 4,500 written comments on the proposed rule amendments.¹⁹

The hearing record closed for all purposes on December 1, 2017.²⁰

NOTICE

The Agency must make this Report available for review by anyone who wishes to review it for at least five working days before the Agency takes any further action to adopt final rules or to modify or withdraw the proposed rules. If the Agency makes changes in the rules other than those recommended in this report, it must submit the rules, along with the complete hearing record, to the Chief Administrative Law Judge for a review of those changes before it may adopt the rules in final form.

Because the Administrative Law Judge has determined that the proposed rules are defective in certain respects, state law requires that this Report be submitted to the Chief Administrative Law Judge for her approval. If the Chief Administrative Law Judge approves the adverse findings contained in this Report, she will advise the Agency of actions that will correct the defects, and the Agency may not adopt the rules until the Chief Administrative Law Judge determines that the defects have been corrected. However, if the Chief Administrative Law Judge identifies defects that relate to the issues of need or reasonableness, the Agency may either adopt the actions suggested by the Chief Administrative Law Judge to cure the defects or, in the alternative, submit the proposed rules to the Legislative Coordinating Commission for the Commission's advice and comment. The Agency may not adopt the rules until it has received and considered the advice of the Commission. However, the Agency is not required to wait for the Commission's advice for more than 60 days after the Commission has received the Agency's submission.

If the Agency elects to adopt the actions suggested by the Chief Administrative Law Judge and make no other changes; and the Chief Administrative Law Judge determines that the defects have been corrected, it may proceed to adopt the rules. If the Agency makes changes in the rules other than those suggested by the Administrative Law Judge and the Chief Administrative Law Judge, it must submit copies of the rules showing its changes, the rules as initially proposed, and the proposed order adopting the rules to the Chief Administrative Law Judge for a review of those changes before it may adopt the rules in final form.

After adopting the final version of the rules, the Agency must submit them to the Revisor of Statutes for a review of their form. If the Revisor of Statutes approves the form of the rules, the Revisor will submit certified copies to the Administrative Law Judge, who will then review them and file them with the Secretary of State. When they are filed with

¹⁹ Of these comments, the vast majority were form letters, form postcards, or petitions. See <https://minnesotaoah.granicusideas.com/discussions/minnesota-pollution-control-agency-environmental-assessment-and-outcomes-division>.

²⁰ Pursuant to Minn. Stat. § 14.15, subd. 2, a one week extension was granted for the preparation of this Report. See Order Extending Deadline for Rule Report (Dec. 28, 2017).

the Secretary of State, the Administrative Law Judge will notify the Agency, and the Agency will notify those persons who requested to be informed of their filing.

SUMMARY OF CONCLUSIONS

The MPCA has established that it has the statutory authority to adopt the proposed rules and that it followed the legal requirements to promulgate the rules.

The Administrative Law Judge **DISAPPROVES** the proposed repeal of the 10 mg/L sulfate standard at **Minn. R. 7050.0220, subs. 3a, 4a, 5a, 6a** and **Minn. R. 7050.0224, subp. 2**, due to the Agency's failure to establish the reasonableness of the repeal, and because the repeal conflicts with the requirements 33 U.S.C. § 1313(c), 40 C.F.R. § 131.10(b) (2015) and Minn. R. 7050.0155 (2017).

The Administrative Law Judge **DISAPPROVES** the proposed equation-based sulfate standard at **Minn. R. 7050.0224, subp. 5, B (1)** because the proposed rule fails to meet the definition of a rule under Minn. Stat. § 14.38 (2016) and Minn. R. 1400.2100.G (2017). In addition, the proposed equation-based sulfate standard is not rationally related to the Agency's objective in this proceeding, and is unconstitutionally void for vagueness.

The Administrative Law Judge **DISAPPROVES** the proposed list of approximately 1,300 wild rice waters at **Minn. R. 7050.0471, subs. 3 through 9** because it violates 40 C.F.R. §§ 131.3 and .11(h)(1).

In addition, the Administrative Law Judge **DISAPPROVES** the following proposed rules because the Agency failed to demonstrate that the proposed rules meet the required legal standards:

- a. Proposed **Minn. R. 7050.0224, subp. 5, A** – to the extent the language incorporates the standard in items B(1) and (2) the language violates Minn. Stat. § 14.38 and Minn. R. 1400.2100.B and G (2017).
- b. Proposed **Minn. R. 7050.0224, subp. 5, A** – to the extent the language incorporates the standard in item C, the language violates Minn. R. 1400.2100.D (2017).
- c. Proposed **Minn. R. 7050.0224, subp. 5, C** – violates Minn. R. 1400.2100D.
- d. Proposed **Minn. R. 7050.0224, subp. 6** – fails to establish need or reasonableness for rule. No reason for distinguishing between [WR], which are provided additional protection of narrative standard, and other wild rice waters listed at Minn. R. 7050.0471 violates 1400.2100.B.

The Administrative Law Judge finds that the Agency failed to provide adequate regulatory analyses as required by Minn. Stat. § 14.131 (1), (5), (7), and (8). While the Agency made the cost determination required by Minn. Stat. § 14.127, the Administrative

Law Judge concludes that this determination is not adequately supported in the rulemaking record.²¹

Based upon all the testimony, exhibits, and written comments the Administrative Law Judge makes the following:

FINDINGS OF FACT

I. Background to the Proposed Rules

1. This rulemaking concerns amendments to Minnesota's water quality standard to protect wild rice from adverse impacts due to sulfate pollution. Wild rice is an important natural resource in Minnesota. In addition to providing food to people and waterfowl generally, it has spiritual, cultural, and nutritional significance to the Dakota and Ojibwe people.

2. Under the federal regulations implementing the Clean Water Act (CWA), the MPCA is responsible for establishing, reviewing, and revising water quality standards.²²

3. Federal law defines "water quality standards" to "consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are intended to protect the public health or welfare, enhance the quality of water and serve the purposes of the Act."²³

4. Water quality standards "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use."²⁴

5. Minnesota Rules, chapter 7050 (2017) establishes water quality standards for "all waters of the state, both surface and underground."²⁵ This chapter sets out a classification system for the beneficial uses of waters, establishes numeric and narrative water quality standards, and provides nondegradation provisions, and other provisions to protect the physical, chemical, and biological integrity of waters of the state.²⁶ Water use classifications, and their accompanying narrative and numeric standards and antidegradation provisions, make up the state's set of water quality standards.

6. In Minnesota, the wild rice resource is protected with a unique water quality standard. The existing wild rice standards, found at Minn. R. 7050.0224, consist of a narrative standard in subpart 1 applicable to selected wild rice waters specifically identified in rule, and a numeric standard in subpart 2 that establishes a sulfate standard

²¹ See *Builders Ass'n. of Twin Cities v. Minnesota Dept. of Labor and Industry*, 872 N.W. 2d 263 (Minn. Ct. App. 2015).

²² 40 C.F.R. § 131.4(a) (2017). Under state and federal law, the MPCA is charged with the administration and enforcement of the CWA. See 33 U.S.C. §§ 1251-1387 (2016); 40 C.F.R. § 123.25(a) (2017); Minn. Stat. § 115.03, subs. 1, 5 (2016).

²³ 40 C.F.R. § 131.3(i) (2017).

²⁴ 40 C.F.R. § 131.11(a)(1) (2017); see also 40 C.F.R. § 131.5(a)(2) (2017).

²⁵ Minn. R. 7050.0110.

²⁶ *Id.*

applicable to “water used for production of wild rice.” The purpose of a designated use of a water body to protect wild rice is described as “the harvest and use of grains from this plant serve as a food source for wildlife and humans.”²⁷

7. Minnesota first adopted a sulfate standard to protect wild rice in 1973.²⁸ The sulfate standard was based on research conducted in the 1930s and 1940s that found that higher levels of sulfate in water correlated with reduced presence of wild rice.²⁹ Based on this research, the MPCA set the numeric standard at 10 mg/L of sulfate applicable to “water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels.”³⁰

8. Over the years, the MPCA has received comments and questions about the appropriateness of the sulfate standard and the meaning of the phrase “waters used for production of wild rice.”³¹ In 2011, the Minnesota Legislature directed the MPCA to undertake further study of the wild rice sulfate water quality standard and to revise the standard as necessary.³² This rulemaking proceeding is the result of that legislative directive.³³

9. In 2011, the Minnesota Legislature provided the MPCA with a \$1.5 million appropriation from the Clean Water Fund to conduct a Wild Rice Sulfate Study to gather additional information about the effects of sulfate and other substances on the growth of wild rice.³⁴ The Legislature also directed the MPCA to undertake rulemaking to identify wild rice waters and to make any other needed changes to the standards following completion of the study.³⁵ The rulemaking was to be completed by January 15, 2018.³⁶

10. The Minnesota Legislature also directed the MPCA to create an advisory group comprised of tribal government representatives and a variety of other stakeholders to provide input on the research and the development of future rule amendments.³⁷ The legislation further directed the MPCA to establish criteria for waters containing natural beds of wild rice after consulting Minnesota tribes, the Minnesota Department of Natural Resources (DNR), and stakeholders.³⁸

11. In 2017, the MPCA received \$180,000 from the Legislative Citizens Commission on Minnesota Resources to analyze wastewater treatment alternatives to

²⁷ Minn. R. 7050.0224, subp. 1.

²⁸ Ex. D SONAR at 11-12, 33-34.

²⁹ Ex. D at 11.

³⁰ Minn. R. 7050.0224, subp. 2.

³¹ Ex. D at 11-12.

³² 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4, § 32.

³³ Ex. D. at 13.

³⁴ Ex. D at 13; 2015 Minn. Laws 1st Spec. Sess. ch. 4, art. 4, § 136.

³⁵ Ex. D at 13.

³⁶ 2015 Minn. Laws 1st Spec. Sess. ch. 4, art. 4, § 136.

³⁷ 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4, § 32.

³⁸ *Id.*

inform the development of the proposed rules. The analysis is expected to be completed by May of 2018.³⁹

12. In 2017, the Minnesota Legislature extended the deadline for completing this rulemaking by one year to January 15, 2019.⁴⁰

II. Rulemaking Authority

13. The MPCA relies upon its general rulemaking authority under Minn. Stat. § 115.03, subd. 1 (2016), as its statutory authority to adopt these proposed rules. This statute provides that the Agency is given and charged with the following powers and duties:

(a) to administer and enforce all laws relating to the pollution of any of the waters of the state;

(b) 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 necessary;

(c) to establish and alter such reasonable pollution standards for any waters of the state in relation to the public use to which they are or may be put as it shall deem necessary for the purposes of this chapter and, with respect to the pollution of waters of the state, chapter 116;

(d) to encourage waste treatment, including advanced waste treatment, instead of stream low-flow augmentation for dilution purposes to control and prevent pollution; and

(e) to adopt, issue, reissue, modify, deny, or revoke, enter into, or enforce reasonable orders, permits, variances, standards, rules, schedules of compliance, and stipulation agreements, under such conditions as it may prescribe, in order to prevent, control, or abate water pollution, or for the installation or operation of disposal systems or parts thereof, or for other equipment and facilities.⁴¹

14. The MPCA also relies upon its general authority to “group the designated waters of the state into classes, and adopt classifications and standards of purity and quality” under Minn. Stat. § 115.44, subd. 2 (2016), as a source of statutory authority to adopt the proposed rules. Minn. Stat. § 115.44, subd. 2, provides in part:

³⁹ Ex. 1015; Letter from Iron Range Legislative Delegation (Nov. 2, 2017); Testimony (Test.) of Rep. Matt Bliss at Tr. 85 (Oct. 25, 2017); Test. of Rep. Rob Ecklund at 69-72 (Oct. 30, 2017).

⁴⁰ 2017 Minn. Laws, ch. 93, art. 2, § 149.

⁴¹ Minn. Stat. § 115.03, subd. 1.

In order to attain the objectives of sections 115.41 to 115.53, the agency after proper study, and after conducting public hearing upon due notice, shall, as soon as practicable, group the designated waters of the state into classes, and adopt classifications and standards of purity and quality therefor.

15. Additionally, the MPCA cites the specific legislative authorities that require it to initiate a process to amend the state water quality standards in Minn. R. ch. 7050,⁴² and that extended the deadline for completing the mandated rule revisions.⁴³

16. The Administrative Law Judge concludes that the Agency has the statutory authority to adopt the proposed rules.

III. Procedural Requirements of Chapter 14 (2016)

A. Publications

17. On October 26, 2015, the Agency published a Request for Comments in the *State Register* seeking comments on “its planned changes to rules governing water quality standards, Minnesota Rules chapter 7050 (Waters of the State).”⁴⁴

18. On August 3, 2017, the Agency requested review and approval of its Notice of Hearing and Additional Notice Plan.

19. On August 8, 2017, Administrative Law Judge Eric Lipman issued an Order on behalf of Administrative Law Judge LauraSue Schlatter approving the Additional Notice Plan and Hearing Notice.

20. On August 21, 2017, the Agency published a Notice of Hearing in the *State Register* stating its intention to adopt rules following the receipt of input from the public.⁴⁵ In the Notice, the Agency announced a series public hearings scheduled for October 23, 24, 25, 30, and November 2, 2017.⁴⁶

21. On August 21, 2017, the Agency sent via electronic mail the Notice of Hearing to all persons and associations who had registered their names with the Agency for the purpose of receiving such notice.⁴⁷ The Agency also provided a copy of the Notice of Hearing to all persons and associations identified in the Agency’s Additional Notice Plan.⁴⁸

⁴² 2011 Minn. Laws 1st Spec. Sess, ch. 2, art. 4, § 32.

⁴³ 2017 Minn. Laws ch. 93, art. 2, § 149.

⁴⁴ Ex. A; 40 *State Register* 477-78 (Oct. 26, 2015).

⁴⁵ Ex. F; 42 *State Register* 171-172 (Aug. 21, 2017).

⁴⁶ *Id.*

⁴⁷ Ex. G.

⁴⁸ Ex. H1.

22. On September 18, 2017, the Agency sent via electronic mail the Notice of Additional Hearing to all persons and associations who had registered their names with the Agency for the purpose of receiving such notice and to all persons and associations identified in the Agency's Additional Notice Plan.⁴⁹ In the Notice, the Agency announced an additional public hearing to take place in Cloquet, Minnesota, on October 26, 2017.⁵⁰

23. The Agency published the Notice of Additional Hearing in the *State Register* on September 18, 2017.⁵¹

24. At the hearing on October 23, 2017, the MPCA filed copies of the following documents as required by Minn. R. 1400.2220 (2017):

a. MPCA's Request for Comments as published in the *State Register* on October 26, 2015;⁵²

b. A Petition for Rulemaking submitted by the Minnesota Chamber of Commerce on December 17, 2010, and a Memorandum in Support of the Minnesota Chamber of Commerce's Petition for Rulemaking dated December 6, 2010;⁵³

c. Proposed rules dated July 24, 2017, including the Revisor's approval;⁵⁴

d. The MPCA's Statement of Need and Reasonableness (SONAR);⁵⁵

e. The Certificate of Mailing the SONAR to the Legislative Reference Library on August 21, 2017;⁵⁶

f. The Notice of Hearing as mailed and as published in the *State Register* on August 21, 2017; and the Notice of Additional Hearing as mailed and as published in the *State Register* on September 18, 2017;⁵⁷

g. Certificate of Mailing the Notice of Hearing to the rulemaking mailing list and Certificate of Accuracy of the Mailing List dated August 21, 2017, and Certificate of Mailing the Notice of Additional Hearing to the rulemaking list and Certificate of Accuracy of the Mailing List dated September 18, 2017;⁵⁸

⁴⁹ Ex. H2.

⁵⁰ *Id.*

⁵¹ Ex. F; 42 *State Register* 369-370 (Sept. 18, 2017).

⁵² Ex. A; 40 *State Register* 477-478 (Oct. 26, 2015).

⁵³ Ex. B.

⁵⁴ Ex. C.

⁵⁵ Ex. D.

⁵⁶ Ex. E.

⁵⁷ Ex. F.

⁵⁸ Ex. G.

h. Certificate of Providing Additional Notice of the August 21, 2017, Notice of Hearing⁵⁹ and Certificate of Providing Additional Notice of the September 18, 2017, Notice of Additional Hearings;⁶⁰

i. Written comments received during the prehearing comment period and a link to the Minnesota Office of Administrative Hearings' rulemaking eComments website, where written comments on the proposed rules received by the Agency prior to the hearing were posted;⁶¹

j. Chief Judge's authorization to omit from the notice of hearing published in the *State Register* the text of the proposed rules (not applicable);

k. Other documents or evidence to show compliance with any other law or rule which the agency is required to follow in adopting this rule:

K1 – Certificate of Sending the Notice of Hearing and SONAR to legislators and the Legislative Coordinating Commission on August 21, 2017;⁶²

K2 – Notice to Department of Agriculture of Agency's intent to adopt rules as required by Minn. Stat. § 14.111, dated July 19, 2017;⁶³

K3 – Notice to the Minnesota Department of Management and Budget and a September 17, 2017, memorandum from the Minnesota Department of Management and Budget;⁶⁴

K4 – Notices sent to affected municipalities as required by Minn. Stat. § 115.44, subd. 7 (2016).⁶⁵

l. Additional documents submitted at the hearing:

Peer-reviewed articles on sulfur processes and sulfate treatment;⁶⁶ the MPCA's rule hearing presentation; errata correcting minor errors in the SONAR; and MPCA Changes to Specific Water Identification Numbers (WID).⁶⁷

⁵⁹ Ex. H1.

⁶⁰ Ex. H2.

⁶¹ Ex. I.

⁶² Ex. K1.

⁶³ Ex. K2.

⁶⁴ Ex. K3.

⁶⁵ Ex. K4.

⁶⁶ Exs. L1–L5 and L8.

⁶⁷ Exs. L6, L7, and L9.

B. Additional Notice Requirements

25. Minn. Stat. §§ 14.131 and 14.23 require that an agency include in its SONAR a description of its efforts to provide additional notification to persons or classes of persons who may be affected by the proposed rule or, alternatively, the agency must detail why these notification efforts were not made.

26. The MPCA states that the proposed revisions have been in development for many years and that it has made extensive efforts to inform and engage specific stakeholders and the general public. In April of 2011, the MPCA created a webpage to provide background about the existing wild rice sulfate standard and its plan to evaluate the standard. Since 2011, the MPCA has also used the GovDelivery system to share information about the wild rice standard with subscribers. In addition, pursuant to a 2011 legislative directive, the MPCA established an advisory committee to provide input to the Commissioner on various topics related to the wild rice scientific study and proposed rulemaking. The MPCA also made a special effort to communicate and consult with Minnesota tribes, given their sovereign status and the great importance of wild rice to the Ojibwe and Dakota people.⁶⁸

27. The MPCA also held numerous meetings over the course of developing the proposed revisions to engage interested persons and obtain feedback.⁶⁹ The MPCA released a draft proposal of the proposed wild rice water quality standard in March 2015, along with a draft list of waters where the standard would apply. The MPCA sent notice of the availability of the draft proposal to the MPCA's GovDelivery mailing list of people who had registered their interest in this topic and posted the draft proposal on its rulemaking webpage.⁷⁰ Before officially proposing the rules, the MPCA held a series of three open house meetings to provide an informal opportunity for the public to review the proposal and ask questions.⁷¹

28. Pursuant to the Additional Notice Plan approved by the Office of Administrative Hearings, on August 8, 2017, the Agency:

- a. posted the Notice of Hearing, SONAR, SONAR attachments, proposed rule language, documents incorporated by reference, information about how to file comments, and the times and locations of hearings on an Agency webpage established to provide information about the proposed rule amendments;
- b. Published the Notice of Hearing on the MPCA's Public Notice webpage;
- c. issued a press release via the GovDelivery system to 534 news media contacts and more than 3,400 media contacts and persons

⁶⁸ Ex. D at 126-128.

⁶⁹ *Id.* at 128.

⁷⁰ *Id.* at 129.

⁷¹ *Id.*

- registered to be notified of news releases to provide information about the proposed rule amendments and how to comment;
- d. provided an extended comment period to allow additional time for review of the proposed rule amendments;
 - e. held multiple public hearings in various locations throughout the state and provided daytime and evening opportunities for people to attend and comment;
 - f. provided notice to a series of nonprofit organizations that represent and serve Native American communities in Minnesota; trade associations that serve mining communities and mining companies; and municipalities that operate wastewater treatment facilities and associations that represent them;
 - g. provided an electronic copy of the Notice of Hearing to more than 2,600 interested parties as certified in the MPCA's Certificate of Mailing Notice;
 - h. provided an electronic copy of the Notice of Hearing to municipalities as required by Minn. Stat. § 115.44, subd. 7;
 - i. posted the Notice of Hearing with links to the SONAR and proposed rule language on the Agency's public notice website for the term of the public notice comment period; and
 - j. posted the Notice of Hearing, SONAR, and proposed rule language on an Agency webpage established to provide information about the proposed amendments.⁷²

29. The Administrative Law Judge finds that the Agency has fulfilled its additional notice requirements.

C. Notice Practice

1. Notice to Stakeholders

30. On August 21, 2017, the Agency provided a copy of the Notice of Hearing to its official rulemaking list (maintained under Minn. Stat. § 14.14) and to stakeholders identified in its Additional Notice Plan.⁷³

31. On September 18, 2017, the Agency provided a copy of the Notice of Additional Hearing to its official rulemaking list (maintained under Minn. Stat. § 14.14) and to stakeholders identified in its Additional Notice Plan.⁷⁴

⁷² Exs. H1 and G. See also Ex. D at 131-132.

⁷³ Exs. G and H1.

⁷⁴ Exs. G and H1.

32. Hearings on the proposed rules were held on October 23, 24, 25, 26, 30, and November 2, 2017.⁷⁵

33. There are 62 days between August 21, 2017 and October 23, 2017, the date of the first hearing in this matter. There are 37 days between September 18, 2017 and October 26, 2017, which was the date of the additional hearing.

34. The Administrative Law Judge concludes that the Agency fulfilled its responsibility to mail the Notice of Hearing and Notice of Additional Hearing "at least 33 days before the . . . start of the hearing."⁷⁶

2. Notice to Legislators

35. On August 21, 2017, the Agency sent a copy of the Notice of Hearing and the SONAR to legislators and the Legislative Coordinating Commission as required by Minn. Stat. § 14.116.⁷⁷

36. Minn. Stat. § 14.116(b) requires the agency to send a copy of the Notice of Hearing and the SONAR to certain legislators on the same date that it mails its Notice of Hearing to persons on its rulemaking list and pursuant to its additional notice plan.

37. The Administrative Law Judge concludes that the MPCA fulfilled the requirements of Minn. Stat. § 14.116(b).⁷⁸

3. Notice to the Legislative Reference Library

38. On August 21, 2017, the MPCA mailed a copy of the SONAR to the Legislative Reference Library.⁷⁹

39. Minn. Stat. § 14.23 requires the agency to send a copy of the SONAR to the Legislative Reference Library when the Notice of Intent to Adopt is mailed.

40. The Administrative Law Judge concludes that the Agency met the requirement of Minn. Stat. § 14.23 that it send a copy of the SONAR to the Legislative Reference Library when the Notice of Intent is mailed.

D. Impact on Farming Operations

41. Minn. Stat. § 14.111 imposes additional notice requirements when the proposed rules affect farming operations. The statute requires that an agency provide a copy of any such changes to the Commissioner of Agriculture at least 30 days prior to publishing the proposed rules in the *State Register*.

⁷⁵ Ex. G.

⁷⁶ Minn. R. 1400.2080, subp. 6.

⁷⁷ Ex. K1.

⁷⁸ Minn. R. 1400.2080, subp. 6.

⁷⁹ Ex. E.

42. The MPCA provided the Commissioner of Agriculture with a copy of the proposed rules and notice of its intent to adopt the rules. This notice was provided on July 19, 2017, 32 days prior to the publication of the Notice of Hearing in the State Register.⁸⁰

43. The Administrative Law Judge concludes that the MPCA fulfilled its responsibilities under Minn. Stat. § 14.111.

E. Statutory Requirements for the SONAR

44. The Administrative Procedure Act obliges an agency adopting rules to address certain factors in its SONAR.⁸¹ Those factors are:

(1) a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule;

(2) the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues;

(3) a determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule;

(4) a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule;

(5) the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals;

(6) the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals;

(7) an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference; and

⁸⁰ Ex. K2.

⁸¹ Minn. Stat. § 14.131.

(8) an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.

1. The Agency's Regulatory Analysis

(1) A description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.

45. The MPCA's analysis focuses on regulated facilities that discharge wastewater to certain waters containing beds of natural wild rice, and on people interested in enjoying the beneficial uses that the water quality standards protect. The Agency states that the beneficial uses includes fishing, swimming, boating, and harvesting wild rice.

a. Classes that will bear costs.

46. The Agency points out that effluent limits imposed on regulated facilities as a result of the proposed rules will be applied through National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permits. These permits are reviewed and re-issued every five years. Any facility that discharges sulfate directly to, or is located upstream of, a wild rice water governed by the rules has the potential to be affected by the proposed rules. These facilities are generally either industrial facilities, or municipal water or wastewater treatment plants.⁸²

47. The MPCA describes the process for adopting the proposed equation-based water quality standards as follows:

In the case of this wild rice sulfate standard, this implementation process will begin with data collection. As noted . . . , the data required will be sediment data to calculate the sulfate standard (or porewater sulfide data to establish an alternate standard), surface water sulfate data, and effluent sulfate data. The MPCA plans to collect the sediment data over time, largely in conjunction with its regular ten-year cycle of intensive watershed monitoring, focusing first on wild rice waters that are most likely to be impacted by high levels of sulfate. The exception would be that where a new or expanded discharge is proposed, the proposer may be required to collect the sediment data following the procedures proposed to be incorporated into the rule.⁸³

48. The Agency notes that regulated facilities that are not already monitoring their sulfate effluent data will probably have to do so for their first five-year permit due to the fact that the permit will be reissued following adoption of the rule. Facilities will also be impacted by an effluent limit review, which involves analysis of site-specific variables

⁸² Ex. D (SONAR) at 145-146.

⁸³ *Id.*

to determine whether the facility's permit must include a limit to ensure that the sulfate standard is not exceeded.⁸⁴

49. The variables include specifics of the facility as well as the receiving water, including the level of the receiving water's sulfate pollutant. The MPCA estimates that, for facilities that already monitor their effluent's sulfate discharge, the effluent limit review will likely occur in the first five-year permit reissuance after the rule is adopted. For facilities that do not, the effluent review will likely not occur until the second five-year permit reissuance after the rule is adopted.⁸⁵

50. Another necessary variable for this analysis is a numeric sulfate standard for at least one wild rice water which is affected by the facility's discharge. To calculate the numeric sulfate standard in accordance with the proposed rule, certain data must be obtained, including the amount of organic carbon and extractable iron in the wild rice water sediment.⁸⁶

51. By identifying the industrial and municipal waste water treatment plants (WWTPs) within a specified distance of a regulated wild rice water, the MPCA was able to estimate "the universe of affected dischargers."⁸⁷

52. Based on an analysis of 2015 NPDES/SDS permit information, the Agency estimated that there are approximately 745 discharge stations upstream of at least one wild rice water to be regulated pursuant to the proposed rules, ranging in distance between one mile to 413 river miles from the nearest regulated wild rice water. About 319 of the stations are within 60 miles of a proposed regulated wild rice water, and about 135 are within 25 miles of a proposed regulated wild rice water. While noting that "25 miles is not a definite predictor for impact . . .,"⁸⁸ the MPCA focuses on the 135 WWTPs as those most likely to be affected by the proposed rule. These facilities are most likely to require an effluent limit review and possibly to incur the treatment costs needed to meet an applicable water quality standard. But, the Agency notes, "[s]everal factors will affect a facility's potential to impact a wild rice water and those factors cannot be determined in advance of establishing the numeric sulfate standard and evaluating the specific circumstances associated with each discharge and each wild rice water."⁸⁹ The new standards could result in costs, if more treatment is needed to meet a standard that is more stringent than the current 10 mg/L standard, or in cost savings, if the standard is more relaxed than the current standard.⁹⁰

53. The Agency states that industrial WWTPs are likely to pass along the costs of new treatment equipment or technologies to their customers and municipal WWTPs are likely to pass along similar costs to their residential, commercial, and industrial system

⁸⁴ Ex. D at 146.

⁸⁵ *Id.*

⁸⁶ Ex. C (proposed rule 7050.0224, subp. 5, B) at li. 7.25-8.12.

⁸⁷ *Id.* at 147.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.* at 148.

users. The Agency speculates that, to the extent the market will not support increased industrial costs, such costs may have to be absorbed, and will thus reduce profits, making the industry less competitive in the marketplace, negatively impacting shareholders and employees, and possibly resulting in a company ceasing operations rather than investing in the expensive technology needed to meet a new standard. The Agency acknowledges that employment is a particularly key issue for the mining economy of Minnesota's Iron Range, but it is unable to predict whether the consequences of adopting the proposed rule will be "as minor as a small increase in the price of the product, or may be as extensive as the consequences to an entire community when a company ceases operations."⁹¹

54. Adopting the standards through the MPCA's water assessment cycle will, in itself, take up to ten years:

The MPCA's current Intensive Watershed Monitoring plan includes intensive data collection across the state following a 10-year cycle. The MPCA is working with field staff to incorporate data collection needs for the proposed sulfate wild rice standard into that effort. In most cases, the MPCA will integrate the collection of sediment data in wild rice waters into our regular monitoring work around the state. The agency will prioritize data collection for wild rice waters most likely to be affected by discharges, and some work may be prioritized outside the regular monitoring schedule.⁹²

55. In its Rebuttal to Comments following the rule hearings, the Agency explains:

[E]valuating the need for and (as needed) determining a water quality based effluent limit requires data specific to the discharge being evaluated and the receiving water(s) being discharged to. Data needs unique to the proposed rule revisions are the sediment iron and carbon (or porewater sulfide) data. Collecting all the data necessary to calculate all effluent limits statewide would take at least ten to fifteen years, even if the sediment data were not needed. Necessary steps such as gathering five years of effluent data to evaluate and set effluent limits combined with the 10-year surface water monitoring schedule to gather surface water data cumulatively add up to the necessary data not being available for some permitted discharges until at least ten to fifteen years after rule promulgation. The MPCA does plan to prioritize data collection based on factors such as those mentioned in the EPA comments, Appendix 2 – the likelihood of sulfate impacts (because of type and location of dischargers) and permitting schedules. It is unreasonable to delay this rulemaking for ten to fifteen years to provide total certainty regarding future effluent limits for specific facility discharges and the exact future costs. In addition, every facility is unique and detailed engineering is needed to estimate the costs of installing any treatment

⁹¹ Ex. D. at 148.

⁹² MPCA Response to Comments, Cover Memorandum at 10 (Nov. 22, 2017) (Response Cover Memo).

system. This is why the MPCA provided general effluent limit considerations and the range of costs detailed in the SONAR. A delay such as would be necessary to gather data and estimate the cost for all potentially affected facilities is particularly unreasonable given that while the rulemaking would be delayed the existing sulfate standard would remain in place and need to be addressed as required by the Clean Water Act and federal regulations.⁹³

56. The Administrative Law Judge concludes that the Agency has correctly described the various types of WWTPs that discharge sulfate directly to, or that are located upstream of, wild rice waters governed by the proposed rules as classes that will bear the cost of the proposed rules. However, the Administrative Law Judge further concludes that the Agency omitted to include, in its discussion of the WWTPs' possible costs, the Agency's SONAR-based expectation, which is not set forth in the rule, that regulated parties will bear the cost of conducting sediment sampling for a new or expanded discharge.⁹⁴

57. The Agency's predictions about the number of dischargers likely to be affected is unreliable because "[s]everal factors will affect a facility's potential to impact a wild rice water and those factors cannot be determined in advance of establishing the numeric sulfate standard and evaluating the specific circumstances associated with each discharge and each wild rice water."⁹⁵

58. The Agency did not identify Minnesota Indian tribes or individual Native Americans as classes of persons who would bear a burden under the proposed rules because the Agency believes that the proposed new sulfate standards will be protective of wild rice.⁹⁶

59. Wild rice is not only a food source for Native American communities, but a source of deep spiritual importance and, for some, a life-giving being.⁹⁷ Many in the Native American communities who submitted comments, testified at the public hearings, and worked with the MPCA during the development of this rule do not believe that the rule will be protective of wild rice. Among the reasons that some of the representatives of Native American communities presented as their concerns about the rule are:

a. A higher sulfate standard will be harmful to the rice because the higher levels of iron underlying the higher sulfate standard cause plaque to form on the roots of the wild rice plants, interfering with the ability of the plant to absorb nutrients and ultimately leading to barren seeds;⁹⁸

⁹³ MPCA Rebuttal Memo at 40-41.

⁹⁴ Ex. D at 146.

⁹⁵ *Id.* at 147.

⁹⁶ *Id.* at 145.

⁹⁷ Exs. 1000 and 1020; Tr. at 142-145 (Oct. 24, 2017); Comments from Fond du Lac Band of Lake Superior Chippewa (filed Nov. 22, 2017).

⁹⁸ Comments from 1854 Treaty Authority (filed Nov. 21, 2017); Comments from Fond du Lac Band of Lake Superior Chippewa (filed Nov. 22, 2017).

b. A higher sulfate standard will lead to higher levels of methylmercury in fish, which in turn leads to serious health concerns for Native American and other populations who rely heavily on fish for food;⁹⁹

c. The list of wild rice waters excludes a number of waters identified by the 1854 Exclusionary Act Treaty as well as the Minnesota DNR's 2008 wild rice waters list;¹⁰⁰ and

d. The MPCA's inclusion, in the wild rice waters listed in the proposed rule, of waters that are within the boundaries of the Fond du Lac and Grand Portage reservations despite requests that those waters be excluded.¹⁰¹

60. While the MPCA had responses to each of these concerns, the volume and nature of the comments from the Native American community demonstrated that the Agency has not succeeded in building an atmosphere of trust regarding this proposed rule, or in making the Minnesota Native American community feel that it has been heard.

61. Implementation of the rule as proposed is a burden to the Minnesota Indian tribes, and many Native American individuals, whose testimony and written comments during the rulemaking process demonstrate that they are compelled to continue to challenge the rule because they believe that the long-term survival of wild rice is in peril and do not believe that the Agency understands the importance of wild rice in Native American culture and life.¹⁰²

62. The Administrative Law Judge concludes that the Agency failed to recognize the proposed rule's burden on the Native American community in its discussion of classes of people who will be burdened by adoption of the proposed rule.

b. Classes that will benefit from the new standard.

63. The MPCA states generally that any person who uses Minnesota waters for drinking, swimming, boating, fishing, commerce, scientific, educational, or cultural purposes, or general aesthetic enjoyment will benefit from the proposed rules. Specifically, the Agency states that any person who harvests wild rice for food or who eats wild rice will benefit. The Agency emphasizes that many Native Americans, especially members of the Ojibwe and Dakota tribes, will benefit from the proposed rule. The Agency states that tribal rights to harvest wild rice are protected in treaties and that harvesting, preparing, sharing, and selling wild rice is important culturally, spiritually, and socially to Native American Minnesotans.¹⁰³

⁹⁹ Tr. at 65-68 (Oct. 25, 2017).

¹⁰⁰ Exs. 1000 and 1020; Comments from 1854 Treaty Authority (filed Nov. 21, 2017); Comments from Fond du Lac Band of Lake Superior Chippewa (filed Nov. 22, 2017).

¹⁰¹ Ex. 1020; Comments from 1854 Treaty Authority (filed Nov. 21, 2017); Comments from Fond du Lac Band of Lake Superior Chippewa (filed Nov. 22, 2017).

¹⁰² Exs. 1000 and 1020; Comments from Fond du Lac Band of Lake Superior Chippewa (filed Nov. 22, 2017); eComments Nicolette Slagle on behalf of Honor the Earth (Nov. 22, 2017); eComments from George Crocker on behalf of North American Water Office (Nov. 22, 2017).

¹⁰³ Ex. D at 149.

64. The Agency asserts that the varied benefits of wild rice include the following:

Transactions and activities associated with the wild rice harvest benefit individuals and local economies. Some tribal members have shared stories about how money from ricing paid for each year's school supplies. Many people place a high value on wild rice as food, especially for its availability, flavor, and health benefits. For persons who have limited incomes or a cultural connection, wild rice can be an important subsistence food.¹⁰⁴

65. In addition, the MPCA states that wildlife, especially the migratory waterfowl that depend on wild rice as a food source, along with the people who hunt waterfowl, engage in bird watching and other wildlife-related activities, plus businesses that support those activities, will benefit from the proposed rules. The Agency adds that businesses that benefit from tourism and people who derive a value from ecosystem services generally will also benefit from the proposed rules.¹⁰⁵

66. The Agency explains that, where the proposed rule will require ambient sulfate levels to be less than 10 mg/L, the equation-based standard will be more protective of the wild rice than the current standard and thus provide a benefit to those who use and value wild rice.¹⁰⁶

67. To the contrary according to the MPCA, where the proposed rule will permit ambient sulfate levels to be higher than 10 mg/L while still maintaining a protective level of sulfide to the wild rice, the equation-based standard will potentially reduce treatment costs. In addition, the proposed alternate standard, which can be used in certain cases where the equation is not appropriate, could also allow sulfate levels to be higher than that calculated by the equation-based standard.¹⁰⁷

68. The proposed rules may thus allow some municipal or industrial dischargers to reduce or eliminate sulfate treatment, or the need for a variance, to operate at a lower level of sulfate treatment. This could permit dischargers to avoid paying for a higher level of wastewater treatment, or applying for, and justifying, a variance request. In addition to the monetary costs of wastewater treatment, the MPCA notes that wastewater treatment for sulfate involves energy use and the generation of by-products, both of which could be lessened or avoided through application of the proposed rules.¹⁰⁸

69. The Agency does not analyze how less-protective standards of wild rice waters that neighbor wild rice waters on tribal lands will affect waters on tribal lands. Nor does the Agency explain how it will insure that increased sulfate levels will not add to mercury methylation.

¹⁰⁴ *Id.* at 150.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.* at 151.

¹⁰⁷ *Id.* In its Rebuttal, the Agency proposes to change the way in which the Alternate Standard is established from the rule as originally proposed. MPCA Rebuttal Response to Public Comments (MPCA Rebuttal) at 6-7 (Dec. 1, 2017). See Ex. C. (proposed rule 7050.0224, subp. 5, B (2)) at li. 8.18-8.25.

¹⁰⁸ Ex. D at 151.

70. The Administrative Law Judge concludes that, to the extent the proposed rule fails to maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters, including waters on tribal lands, the proposed rule will not benefit wildlife, or the Objibwe, Dakota or other people who harvest or depend on wild rice for food, spiritual or cultural nourishment, or as a means of earning money.

c. Classes that will benefit from clarity regarding how and where the standard applies.

71. The MPCA states that the proposed rule may benefit dischargers “in the form of the benefit of regulatory certainty, prompt permit renewal, and protection from litigation.”¹⁰⁹ By “regulatory certainty,” the MPCA means “the general ability of permittees to know and anticipate environmental regulations and reasonably plan for compliance. . . .”¹¹⁰

72. The MPCA identifies two areas of difficulty for dischargers of sulfate: (1) a lack of duration or averaging time in the current sulfate rule, leading to uncertainty regarding whether the standard applies at all times or is to be averaged over some period of time; and (2) a lack of clear criteria for determining whether a given water is used for production for wild rice, resulting in case-by-case decisions regarding the applicability of the sulfate standards.¹¹¹

73. According to the MPCA, it is this lack of clarity concerning waters used for the production of wild rice that has resulted in delayed issuance of new or renewed NPDES/SDS permits. Because the proposed rule specifically identifies wild rice waters and provides more details about the standard, the proposed rule provides dischargers with more certainty regarding “whether their effluent may impact a wild rice water and whether they will need to take actions because of the standard – from monitoring their effluent to undergoing an effluent limit review to installing treatment.”¹¹²

74. The MPCA predicts that the proposed rule will speed permitting, reduce permitting backlogs, and reduce the risk of litigation. In addition, the Agency states that the proposed rule will “allow existing facilities to implement improvements and innovations that are currently stalled.”¹¹³ According to the Agency, industries and taxpayers will benefit because dischargers will be able to obtain and update their permits more effectively under the proposed rule.¹¹⁴

75. Finally, the MPCA envisages that greater clarity about how and where the wild rice sulfate standard applies will also allow the development of a clear process of

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 151, n.24.

¹¹¹ *Id.* at 151-152.

¹¹² Ex. D at 152.

¹¹³ *Id.*

¹¹⁴ *Id.*

assessing wild rice waters to determine attainment of the standard. This is important both for assessment and identifying impaired waters and for developing point source permit limits to ensure compliance with the standard. In this way, a clearer, more effective standard will also benefit those concerned about the effective protection of wild rice waters.¹¹⁵

76. The tribal representatives and the WaterLegacy and other environmental organizations disagreed strongly with the exclusion of water bodies where wild rice is an existing use under the CWA as demonstrated by their inclusion on the 1854 Treaty list and the Minnesota Department of Natural Resources' (MDNR) 2008 list of Minnesota wild rice waters.¹¹⁶ While not identifying specific reasons for excluding individual water bodies, the Agency acknowledges that it excluded from the proposed rule some water bodies where wild rice has been an existing use.¹¹⁷

77. The Administrative Law Judge concludes that because the proposed rule listing wild rice waters is not in compliance with the CWA it will not improve the permitting process by providing certainty as to the water bodies which are identified. Therefore, the proposed rule will not provide the benefit of clarity regarding identification of wild rice waters to WTP owners and operators.

78. Because the Agency has not sampled the affected waters before proposing the rules, it cannot state what the standard will be for any given discharger, or whether that discharger's effluent will exceed a new standard, and what treatment may be needed to meet the standard, once it is ascertained.¹¹⁸

79. Regulated parties predict extremely large costs for wastewater sulfate treatment and express frustration at the lack of specific information which would allow them to accurately predict and plan for water treatment requirements or variance requests.¹¹⁹

80. The Administrative Law Judge concludes that the Agency's decision to promulgate this rule without defining a standard applicable to each regulated wild rice water undermines many of the potential benefits the rule could provide to WTP owners and operators, including improvements in their ability to plan, certainty about regulated waters, and efficiency in the regulated environment.

81. The Administrative Law Judge concludes that the proposed rule may continue to give rise to litigation regarding the identification of wild rice waters subject to the sulfate standard. In addition, the rule as proposed is more likely to give rise to litigation

¹¹⁵ *Id.*

¹¹⁶ Comments from 1854 Treaty Authority (filed Nov. 21, 2017); Comments from WaterLegacy (filed Nov. 22, 2017).

¹¹⁷ Ex D at 58.

¹¹⁸ *Id.* at 145-149, 165, 182-186.

¹¹⁹ See, e.g., Exs. 1009, 1029, U.S. Steel Corporation comments (filed Nov. 22, 2017); Comments from Hibbing Chamber of Commerce (filed Nov. 2, 2017); Comments from Alexandria Lake Area Sanitary District (filed Nov. 20, 2017).

regarding the standard itself.¹²⁰ Therefore, the Administrative Law Judge concludes that the Agency incorrectly determined that the proposed rule will lead to less litigation concerning the water quality standards for wild rice waters.

82. The Administrative Law Judge finds that the Agency performed an analysis of classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule as required by Minn. Stat. § 14.131(1). However, the Administrative Law Judge finds that the Agency's determinations as a result of that analysis are not supported by the record.

(2) The probable costs to the Agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

83. The MPCA implements water quality standards primarily through permitting and assessment. The Agency states that it will continue its activities related to permit applications, variance requests, assessments, impaired water identification, and compliance enforcement using the revised standard instead of the previous standard.¹²¹

84. The MPCA predicts that it will incur the following additional costs if the proposed rules are adopted:

- a. Updating the list of wild rice waters (data gathering and rulemaking);
- b. Conducting sediment and surface water sampling and analysis;
- c. Processing permit applications;
- d. Reviewing variance requests; and
- e. Responding to possible litigation.¹²²

85. In this rulemaking, the Agency is proposing to identify approximately 1,300 waters as wild rice waters. While the Agency expects that these waters make up most of the wild rice waters in Minnesota, it expects it will be need to amend the rule within three years to add newly identified wild rice waters.¹²³

86. The MPCA presumes that it will be able to gather information leading to the identification of additional wild rice waters through its existing triennial standards review process and its routine water assessment activities. Therefore, the MPCA does not expect to incur additional costs to obtain wild rice information.¹²⁴

¹²⁰ See discussion in this Report at 55-58.

¹²¹ Ex. D SONAR at 152.

¹²² Ex. D at 152-153.

¹²³ Ex. D at 153.

¹²⁴ *Id.*

87. The MPCA estimates the cost of a rulemaking including a hearing in three years will be approximately \$129,000. The Agency projects that future amendments may not be controversial and may either be adopted without the need for a hearing, making them less costly, or may be combined with other rulemaking projects at no additional cost.¹²⁵

88. Another cost of implementing the proposed rule will be calculating the new sulfate standard pursuant to the proposed equation-based standard or the alternative standard at each of the approximately 1,300 identified regulated wild rice waters. The MPCA plans to conduct analyses of the sediment of wild rice waters as part of its permitting process for new or expanding discharge sources, and its regular 10-year cycle of intensive watershed monitoring. The MPCA plans to initially focus its efforts to calculate the sulfate standard on wild rice waters associated with existing permitted dischargers.¹²⁶

89. According to the MPCA, between 1,050 and 1,100 of the wild rice waters identified in the proposed rule are not currently impacted by a discharge, leaving approximately 200-250 waters for the MPCA to prioritize. The MPCA's plan to collect and sample the sediment, in order to calculate the standard under the proposed rule, is spelled out in the SONAR but not in the rule:

[D]uring the existing process of preparation for each year's lake and stream monitoring, the MPCA will review how many wild rice waters are in the watershed, and the resources to collect and sample sediment. Waters to be sampled, if there are more than resources allow, will be prioritized based on factors such as the distance from dischargers, type of discharger, and timeline for permit reissuance.¹²⁷

90. Using procedures for collection and analysis of the sediment according to the methods prescribed in its document entitled "Sampling and Analytical Methods for Wild Rice Waters,"¹²⁸ the MPCA determined that an average cost to conduct the necessary sampling analysis of a wild rice water in order to calculate the numeric sulfate standard will be approximately \$1,200 per regulated wild rice water, including laboratory services.¹²⁹

91. The MPCA separately calculated that the costs for porewater sampling and analysis to establish an alternate sulfate standard will be approximately \$1,050 per

¹²⁵ *Id.*

¹²⁶ As stated above, the MPCA expects that, for new or expanded discharge sites, the permittee will be responsible for the cost of characterizing sediment total extractable iron and sediment total organic carbon. Ex. D at 154. This expectation is not stated in the rule.

¹²⁷ Ex. D at 154.

¹²⁸ The MPCA incorporated the Sampling and Analytical Methods for Wild Rice Waters by reference into the proposed rule. Ex. C. at lines 9.8-9.12 (part 7050.0224, subp. 5, E). However, as discussed later in this Report, the MPCA's December 1, 2017 Rebuttal comments include a proposal to allow people to use methods consistent with its methods, rather than strictly conforming to the methods as written. In addition, the MPCA mentions that it may make changes to the Sampling and Analytical Methods document. MPCA Rebuttal at 6-7.

¹²⁹ Ex. D at 154.

regulated wild rice water, including laboratory analysis of 10 porewater samples. For the alternate standard, the \$1,050 is in addition to the initial \$1,200 for calculating the numeric sulfate standard, resulting in a total of \$2,250.¹³⁰

92. The MPCA was unable to estimate the costs for establishing a site-specific standard, except to state that they will be highly variable:

In addition to the cost of sediment sampling, and possibly porewater sampling, there will be other costs unique to the situation. It is likely that more extensive sampling and analysis will be needed and additional costs will be incurred to determine the factors affecting the wild rice beneficial use in that water body.¹³¹

93. The MPCA predicts that, while the complexity of the proposed wild rice sulfate standard will require increased staff time and costs to review permit applications, that increase will be balanced by a decrease in time required to resolve questions about whether the sulfate standard applies to a particular receiving water. Only those waters listed as wild rice waters in the proposed rule will be subject to the rule's sulfate standard. The MPCA states that the determination of "whether a water is a 'water used for production of wild rice' has been a significant obstacle to efficiently applying the existing sulfate standard, requiring time from multiple staff to make a determination."¹³²

94. Because such determinations will no longer be required under the proposed rule, the MPCA anticipates that the proposed rule will not result in significant changes to the Agency's current administrative costs to review permit applications.¹³³

95. Similarly, the Agency states it does not believe that it will incur significant increases in costs to process variance requests as a result of the proposed rule. The Agency acknowledges that a revised standard will likely result in requests for variances from the new standard, but states "it is difficult to predict how many, when they will be received, and the degree of complexity of those requests."¹³⁴ Nonetheless, the MPCA concludes that, as with permitting costs, it "does not expect that the costs associated with increased variance reviews will exceed the costs associated with the complicated and time consuming process required to implement the current rules."¹³⁵

96. The MPCA recognizes that the portion of the proposed rule allowing for an exemption from the fees for municipal WWTPs seeking a variance from a wild rice standard or effluent limit will entail a cost to the MPCA.¹³⁶ The MPCA forecasts that the fee waiver will not have a significant impact on its resources because it is developing a streamlined variance application and review process specifically for the sulfate standard.

¹³⁰ *Id.* at 154-155.

¹³¹ *Id.* at 154.

¹³² *Id.* at 155.

¹³³ *Id.*

¹³⁴ Ex. D at 156.

¹³⁵ *Id.*

¹³⁶ *Id.* Ex. C. at 67.20-67.21 (proposed rule 7053.0406, subp. 2, C).

The Agency expects that the streamlined process will result in a reduced level of staff effort required to review applications for variances from the proposed sulfate standards.¹³⁷

97. The Agency stated frequently during public hearings that it expects WWTPs that are required to meet higher sulfate standards to apply for variances from those standards.¹³⁸ The cost analysis does not reflect an anticipated increase in variance requests, or a discussion of whether the Agency expects variance requests to increase as a result of expected higher standards for some dischargers under the proposed rules.

98. The MPCA anticipates litigation costs regardless of whether the proposed rules are adopted. It is not able to estimate what the costs will be, but surmises that the costs will be higher if the new standard is not adopted than if it is adopted. This is based on the MPCA's assumption that legal challenges under the existing standard will have to do with the identification of waters used for the production of wild rice, and that legal challenges under the proposed standard will be to permits issued under the revised standard.¹³⁹

99. The MPCA does not include in its litigation estimate any possible challenges from one or more of the many groups that have vigorously opposed this rule. Those groups include Native American communities, environmental groups, mining companies, power companies, municipal WWTPs, and a variety of governmental entities. The Administrative Law Judge concludes the MPCA may have underestimated litigation costs that could follow if the rule is adopted.

100. Explaining that other state agencies incur costs if they have permitted projects or operations required to comply with water quality standards, the MPCA states that other agencies, especially the Minnesota Department of Transportation (MnDOT), and the Minnesota Department of Natural Resources (MDNR) may incur additional costs under the proposed rules. MnDOT operates highway rest areas and MDNR operates campgrounds and fish hatcheries, all of which generate wastewater. The wastewater treatment systems associated with these activities are often subsurface sewage treatment systems that do not discharge. However, the MPCA has determined that eight MnDOT or MDNR facilities operate WWTPs that discharge to proposed wild rice waters.¹⁴⁰

101. Another situation that could result in costs to MnDOT will arise if MnDOT conducts road construction in an area of high sulfate rock, resulting in increased sulfate storm water runoff to nearby regulated wild rice waters. The MPCA explains that state agency costs "in these situations will vary based on the treatment facility and receiving water characteristics and may be incurred regardless of the adoption of the proposed

¹³⁷ Ex. D at 109, 156.

¹³⁸ See Tr. at 51-54 (Oct. 23, 2017); Tr. at 47-48 (Oct. 24, 2017); Tr. at 59-60 (Oct. 30, 2017).

¹³⁹ Ex. D at 156.

¹⁴⁰ Ex. D at 157.

rules.”¹⁴¹ The MPCA concludes that it is unable to provide a reasonable estimate of possible costs without considering the site-specific factors.¹⁴²

102. The MPCA predicts that the proposed sulfate rule’s greater protection for regulated wild rice will increase the value provided by the wild rice, including tourism dollars related to increased wild rice harvesting and related activities, and sales tax on more abundant marketed wild rice. The MPCA predicts that if the proposed rules are not adopted these benefits to state revenue will be lost.¹⁴³

103. The MPCA theorizes that the proposed rule, if adopted, may inhibit industrial growth or expansion due to the added costs of complying with more stringent sulfate standards. This could result in lost jobs and reduced state tax revenue. Conversely, the MPCA posits that, to the extent that the new standard requires less treatment of wastewater, there could be additional investment in new and existing industrial facilities, with added jobs and financial benefits to the state. The MPCA also points out that where additional treatment is required at existing facilities, the costs of new treatment systems, and the installation and operation of those systems, could provide additional employment, increased income, and equipment purchases with resulting increases in income and sales tax revenue for the state.¹⁴⁴

104. Ultimately, the Agency concludes that, while the proposed rule change will likely affect state revenues, it cannot predict the direction or magnitude of the impact on revenues.¹⁴⁵

105. The Administrative Law Judge concludes that the Agency performed the analysis required regarding probable costs to itself, and to any other agency, of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues to the extent that it was able to do so with incomplete information.

(3) The determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

106. The Agency combined its response to this statutory requirement with its response to statutory requirement (4) below.

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ Ex. D at 157-158.

¹⁴⁵ *Id.* at 158.

(4) A description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule.

107. The MPCA notes that the determination of whether there are less costly or less intrusive methods to protect wild rice waters depends on what level of protection is desired. A less protective sulfate standard may result in lower treatment costs for some dischargers, but may be less beneficial for the groups who value wild rice. Similarly, a more narrow definition of what constitutes a wild rice water may be deemed a benefit to some, but overly restrictive to others.¹⁴⁶

108. The MPCA considered a number of possible alternatives to the proposed rule including: (1) adopting a narrative standard; (2) adopting a higher protective sulfide value; (3) maintaining the existing 10 mg/L sulfate standard or adopting a different fixed numeric standard instead of the proposed equation; and (4) adopting an alternative equation standard other than the proposed equation.¹⁴⁷

109. After reviewing the possible alternatives, the MPCA concluded that its proposed equation standard, which tailors the sulfate standard to the naturally variable environmental conditions, represents the best current scientific understanding of the effect of sulfate and sulfide on wild rice and provides the most precise protection of wild rice water's beneficial use.¹⁴⁸ The MPCA concluded that a narrative standard would not represent a significant improvement over the current fixed standard and could not be effectively implemented through permitting or assessment.¹⁴⁹ The MPCA also maintains that fixed numeric standards ignore current scientific information correlating wild rice viability with sulfide resulting from the interaction of sulfate with other compounds in the sediment.¹⁵⁰ According to the MPCA, the most accurate fixed standard is still much less accurate than the proposed equation-based standard.¹⁵¹ The MPCA states that it considered other equation standards but ultimately concluded that its proposed equation standard is appreciably more accurate (misclassification rate of 16 to 19 percent) than the other modeling it analyzed.¹⁵²

110. The MPCA also considered applying the current 10 mg/L standard or adopting an interim standard for all wild rice waters where no equation-based sulfate value has been calculated. Commenters expressed concern that it will take the MPCA many years to calculate a standard for the 1,300 wild rice waters identified in this rulemaking.¹⁵³ The MPCA acknowledges the validity of the concern about the length of time it will take to characterize 1,300 wild rice waters it proposes to list in the rule.

¹⁴⁶ Ex. D at 159.

¹⁴⁷ *Id.* at 160-161.

¹⁴⁸ Ex. D at 159-163; MPCA's Response to Public Comments Attachment 1 at 3 (Nov. 22, 2017).

¹⁴⁹ Ex. D at 160.

¹⁵⁰ *Id.* at 161.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ Ex. D at 162.

However, it maintains it plans to prioritize those wild rice waters that receive or may receive a discharge from a permitted facility.¹⁵⁴ According to the MPCA, approximately 250-350 of the identified wild rice waters receive a discharge and it has developed an implementation plan to prioritize the sampling needed to calculate a numeric sulfate standard for those waters.¹⁵⁵

111. The MPCA considered applying a “no net increase” in sulfate discharges to wild rice waters until a numeric standard is determined. But this proved to be difficult to create in rule and the Agency concluded it was unnecessary as no new discharges will be permitted without a sulfate standard being first calculated.¹⁵⁶

112. The Agency also considered a number of alternatives to its criteria for identifying wild rice waters. The MPCA proposes to identify a wild rice water using the unique numeric identification it assigns to streams, rivers, and lakes.¹⁵⁷ This numeric identification is referred to as a water ID or WID.¹⁵⁸ Commenters expressed concern that identifying an entire large body of water as a wild rice water would not be reasonable if wild rice was only located in a small portion of the water body.¹⁵⁹ In response to these concerns, the MPCA considered identifying as a wild rice water only the specific area within a water where wild rice beds are found.¹⁶⁰ The MPCA concluded, however, that such an approach would be unreasonable because: (1) it would create a completely new system to identify a water, and (2) wild rice beds are known to move within a stream reach from one year to the next depending on hydrology and other factors.¹⁶¹ According to the MPCA, a new form of identification would be inconsistent with the MPCA’s many other data collection uses and would result in information that could not be effectively or efficiently compared and shared.¹⁶²

113. The MPCA also received comments that its process of identifying wild rice waters was based on consideration of either too little or too much wild rice.¹⁶³ The MPCA maintains that the process it uses to identify wild rice waters reasonably characterizes them in regard to both the beneficial use of a Class 4D water (use of the grain as a food source by wildlife and humans) and the statutory mandate to consider the acreage and density of wild rice.¹⁶⁴ Under the proposed rules, the Commissioner is required to consider information about wild rice waters in the regular triennial water quality standards review process, which includes a public notice and comment period.¹⁶⁵

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ Ex. D at 40.

¹⁵⁸ *Id.* at 39.

¹⁵⁹ *Id.* at 162.

¹⁶⁰ *Id.* at 40.

¹⁶¹ *Id.* at 40,162.

¹⁶² *Id.* at 40-41.

¹⁶³ *Id.* at 162.

¹⁶⁴ *Id.*

¹⁶⁵ Ex. D at 163.

114. The MPCA considered alternatives for future identification of wild rice waters based on water bodies meeting specific stem densities or observation of wild rice over several growing seasons.¹⁶⁶ Ultimately, the MPCA decided that a specific threshold for determining wild rice waters was too limiting.¹⁶⁷ The MPCA maintains it is better to evaluate adding water bodies based on their unique factors as they relate to the beneficial use, which is the process the MPCA employed to identify the 1,300 wild rice waters being proposed.¹⁶⁸ The MPCA notes that, because each addition to the list of wild rice waters will be required to go through rulemaking, the specific factors demonstrating the beneficial use necessary to establish the water as a wild rice water will be considered in the SONAR and can be evaluated in that rulemaking.¹⁶⁹

115. The MPCA also considered alternatives to the application of the proposed equation-based sulfate standard.¹⁷⁰ The MPCA contemplated applying averaging periods other than the annual average proposed. Some commenters suggested that a monthly average would be more protective of wild rice during critical growth periods.¹⁷¹ Ultimately, the MPCA rejected shorter averaging periods. The MPCA maintains that its research supports the conclusion that porewater sulfide is a function of long-term (at least one year) average concentrations of sulfate, rather than short-term changes in surface water sulfate.¹⁷²

116. The MPCA also considered alternatives for sediment sampling and analytical results in the equation-based standard.¹⁷³ The proposed rule establishes how many sediment samples must be taken and analyzed for iron and carbon and how the resulting values are used in the equation.¹⁷⁴ The MPCA proposes that the sediment of a wild rice water can be adequately characterized by a composite of five sediment cores from each of five different areas within the water body.¹⁷⁵ The MPCA proposes to designate the lowest of the five calculated sulfate concentrations as the sulfate standard for that wild rice water.¹⁷⁶

117. Some commenters suggested taking the average value of the five sulfate concentrations, rather than the lowest.¹⁷⁷ Others suggested calculating the 10th or 20th percentile concentration from the data.¹⁷⁸ The MPCA considered these alternatives and concluded that taking the lower value would be the best approach. The MPCA contends that an average value would not be protective of the entire wild rice population and is susceptible to biasing high if the analysis yields one unusually high value that is

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ Ex. D at 164.

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ Ex. D at 165.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

incorporated into the average.¹⁷⁹ Using the lowest value is also easier to implement than calculating a percentile value. The MPCA maintains that using the lowest value from the set of calculated sulfate concentrations is a reasonable method to produce a protective sulfate concentration for a wild rice water.¹⁸⁰

118. Both Representative Rob Ecklund (Minnesota House District 3A) and Representative Matt Bliss (Minnesota House District 5A) noted that the MPCA had received \$180,000 from the Legislative Citizens Commission on Minnesota Resources to analyze wastewater treatment alternatives to inform the development and analysis of wild rice, sulfate, and other water quality standards.¹⁸¹ That analysis will be completed in May of 2018.¹⁸² Both Representatives Ecklund and Bliss were critical of the MPCA for proposing the new sulfate standard before the analysis of wastewater treatment alternatives was completed. Representative Bliss stated that the legislature moved the deadline for completing this rulemaking to January of 2019 specifically so the MPCA could use the results of the study to further inform its new wild rice standard.¹⁸³

119. The Iron Range Legislative Delegation¹⁸⁴ commented in a joint letter pointing out that, during the 2017 Legislative Session, the legislature provided the MPCA with an additional year, until January, 2019, to adopt a new wild rice water quality standard. The letter states that “[t]he proposed rules are premature . . .” because the sulfate treatment cost analysis is not complete. The letter also expressed concerns about the relative untested nature of the science underlying the proposed standard, and supported eliminating the 10 mg/L standard.¹⁸⁵

120. WaterLegacy opposes the MPCA’s proposed equation standard.¹⁸⁶ It contends that the MPCA’s assumption that iron protects wild rice from the harmful effects of sulfate loading is premature and inconsistent with both laboratory experiments and field experience.¹⁸⁷ According to WaterLegacy, the proposed equation standard will neither provide effective protection of wild rice nor clarify implementation.¹⁸⁸

121. WaterLegacy also opposes the MPCA’s proposed identification of wild rice waters.¹⁸⁹ According to WaterLegacy, the MPCA’s proposal to restrict the water bodies in which any wild rice sulfate standard would apply is arbitrary and would remove a

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ Tr. at 87 (Oct. 25, 2017); Tr. at 69-72 (Oct. 30, 2017); Ex. 1015.

¹⁸² Ex. 1015.

¹⁸³ *Id.*

¹⁸⁴ Letter from Iron Range Legislative Delegation (Senators David Tomassoni, Thomas Bakk, and Justin Eichorn, and Representatives Jason Metsa, Rob Ecklund, Julie Sandstede, Dale Lueck, and Sandy Layman) (Nov. 2, 2017).

¹⁸⁵ *Id.* at 1.

¹⁸⁶ WaterLegacy comments (filed Nov. 22, 2017).

¹⁸⁷ *Id.* at 18.

¹⁸⁸ *Id.*

¹⁸⁹ WaterLegacy comments (filed Nov. 22, 2017) at 30.

designated use and de-list wild rice waters identified by Minnesota state agencies, including waters downstream of existing and potential mining discharge.¹⁹⁰

122. Similarly, both the Friends of the Boundary Waters and the Fond du Lac Band complained that the MPCA was removing a designated use when it failed to identify certain waters as wild rice waters.¹⁹¹ The comments referred to all waters listed in Appendix B of the MDNR's 2008 *Natural Wild Rice in Minnesota* report and the 1854 Treaty Authority's 2016 and 2017 lists of wild rice waters.¹⁹²

123. The MPCA maintains that not all surface waters in the state are class 4A waters used for the production of wild rice. The MPCA points out that the existing sulfate standard is applicable only to "water used in the production of wild rice" and that this modifying language clearly demonstrates that not all Class 4A waters are wild rice waters.¹⁹³ The MPCA also contends that the presence of a waterbody in the MDNR's 2008 inventory¹⁹⁴ is not sufficient to demonstrate beneficial use.¹⁹⁵

124. Other commenters, like Mining Minnesota, complained that the MPCA was over-designating waters as wild rice waters.¹⁹⁶

125. The Administrative Law Judge concludes that the MPCA provided the analysis required by Minn. Stat. § 14.131(4).

(5) The probable costs of complying with the proposed rules, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals.

126. The MPCA states that, because many of the variables affecting costs cannot be determined until the standard is actually implemented at a specific location it has limited information about the probable costs of complying with the proposed rules.¹⁹⁷

127. The MPCA acknowledges that if a facility needs to treat its wastewater discharge to comply with the revised water quality standard, the design, construction, installation, and operation of the treatment system will be a major cost.¹⁹⁸

¹⁹⁰ *Id.*

¹⁹¹ See MPCA's Rebuttal Response to Public Comments Submitted during the Post-Hearing Public Comment Period at 12 (filed Dec. 1, 2017).

¹⁹² *Id.*

¹⁹³ *Id.*

¹⁹⁴ MDNR's 2008 *Natural Wild Rice in Minnesota – A Wild Rice Report Study Report to the Legislature* (2008), Appendix B.

¹⁹⁵ *Id.*

¹⁹⁶ See Comments from Mining Minnesota (filed Nov. 22, 2017) and MPCA's Rebuttal Response to Public Comments Submitted during the Post-Hearing Public Comment Period at 13 (filed Dec. 1, 2017).

¹⁹⁷ *Id.*

¹⁹⁸ Ex. D at 166.

128. In addition to municipal WWTPs, the MPCA permits nearly 520 industrial wastewater discharges under its NPDES/SDS permitting program.¹⁹⁹ The MPCA permits a variety of types of industrial wastewater discharge, including discharges from non-contact cooling water systems, ethanol producers, manufacturing facilities, food processors, paper mills, and power plants. Industrial wastewater dischargers also include sand/gravel/stone mining, peat mining, and taconite mining operations.²⁰⁰

129. The MPCA acknowledges that treatment for sulfate can be extremely expensive.²⁰¹ According to the MPCA, reverse osmosis (RO) membrane filtration is the most practical sulfate treatment technology currently available for removing sulfate from wastewater discharges.²⁰² However, the MPCA states that there are significant design uncertainties that make it difficult to estimate costs for RO treatment of sulfate.²⁰³ According to the MPCA, a design engineer would need to perform extensive site-specific analysis and engineering testing in order to get the correct parameters to design and cost a full-scale plant capable of removing sulfate and meeting all potential permit limits.²⁰⁴ The MPCA states that, if bench or pilot testing of operations is required to obtain design parameters, it will add well over a year to the full-scale plant design time and hundreds of thousands of dollars to the design costs.²⁰⁵

130. The MPCA states that treating municipal wastewater using RO followed by evaporation and crystallization is likely to have high capital costs associated with sulfate-polishing costs that are above the costs of conventional WWTPs.²⁰⁶ There will also be high operation and maintenance costs associated with concentrate management.²⁰⁷ Energy and disposal costs are the primary drivers of concentrate management operations and maintenance costs.²⁰⁸ The MPCA notes that RO is an energy intensive process but evaporation with crystallization is much more so.²⁰⁹ In addition, the crystallized salts must be disposed of at a landfill and the tipping and hauling fees will add cost.²¹⁰ The MPCA cites to the Barr report that found five to ten percent of operations and maintenance costs were associated with disposal fees.²¹¹

131. RO membrane treatment with evaporation and crystallization also has significant secondary costs such as high carbon emissions, advanced operator training requirements, and an increased need for operator labor hours.²¹² According to the MPCA, when evaporators and crystalizers are operated in conjunction with a RO plant,

¹⁹⁹ Ex. D at 169.

²⁰⁰ *Id.*

²⁰¹ Ex. D at 182.

²⁰² *Id.* at 181-182.

²⁰³ *Id.* at 181.

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ Ex. D at 183.

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ Ex. D at 184.

²¹¹ *Id.* citing SONAR Ex. 42.

²¹² Ex. D at 184.

four to eight additional labor hours per eight-hour shift are normally required.²¹³ The MPCA acknowledges that the combination of these secondary considerations could prove prohibitively burdensome for affected communities.²¹⁴

132. The MPCA notes that, with respect to municipal dischargers, there are some state programs available to mitigate the cost of activities necessary to comply with the proposed sulfate standard.²¹⁵

133. With respect to taconite mine dischargers, the MPCA states that it is impossible to estimate the costs for treatment of taconite mine wastewater with a high degree of certainty as it will vary depending on the volume, concentration, level of treatment, and process used.²¹⁶ A mining company's 2012 estimate of costs associated with mining wastewater treatment to achieve the current wild rice sulfate standard of 10 mg/L identified total capital costs at over \$20 million and annual operation and maintenance costs at nearly \$3 million.²¹⁷

134. The MPCA notes that the identification of 1,300 wild rice waters in the proposed rule will expand the number of permittees required to address sulfate treatment in their discharges.²¹⁸ This requirement will likely increase the cost of preparing a permit application for these permittees and the fees associated with the review of the application.²¹⁹

135. In addition, the MPCA includes approximately \$1,200 per body of wild rice water for taking samples to characterize the sediment and collecting and analyzing porewater for sulfide in order to develop the numeric standard.²²⁰

136. The record indicates that some industries and cities will incur substantial costs in complying with the proposed rules.

137. Many commenters expressed concern about the potential significant costs to municipal and industrial dischargers associated with achieving a revised sulfate standard. For example, the Duluth Area Chamber of Commerce indicated its opposition to the proposed rule revisions citing the prohibitively expensive treatment options.²²¹ Likewise, Nancy McReady with Conservationists with Common Sense (CWCS) predicted the proposed rules could bankrupt cities and businesses and result in large increases to residential sewer and water bills.²²²

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ Ex. D at 188.

²¹⁶ *Id.* at 184.

²¹⁷ Ex. D at 185, Table 18.

²¹⁸ Ex. D at 186.

²¹⁹ *Id.*

²²⁰ *Id.*

²²¹ Rulemaking eComment from David Ross (filed Nov. 6, 2017).

²²² Rulemaking eComment from Nancy McReady (filed Nov. 4, 2017).

138. State Representative Mike Sundin (Minnesota House District 11A) echoed the Western Lake Superior Sanitary District's concern that implementation of RO treatment could require a \$500 million investment, resulting in residential sewer bills increasing upwards of five times.²²³ Gerard Bettendorf, mayor of the city of Foley, commented that the proposed rule could have a devastating economic impact on Foley and other cities throughout Minnesota.²²⁴

139. In its Response to Public Comments, the MPCA states that the conclusions made by some commenters regarding the extensive costs of implementing the proposed standard are premature.²²⁵ The MPCA asserts that it intends to make use of available tools and "pursue creative strategies" to avoid impacts to municipalities and industries that would affect jobs, affordability of municipal services, and economic vitality.²²⁶ According to the MPCA, economic and environmental health are not mutually exclusive.²²⁷

140. The Administrative Law Judge concludes that the MPCA has attempted to engage in the analysis required by Minn. Stat. § 14.131 but that the record does not support an adequate analysis.

(6) The probable costs or consequences of not adopting the proposed rule, including those costs borne by individual categories of affected parties, such as separate classes of governmental units, businesses, or individuals.

141. The MPCA asserts that there are two primary problems with the existing standard that would not be resolved if the proposed revisions are not adopted.²²⁸ The first problem is the difficulty of determining how the standard applies and defining the waters to which the existing standard applies.²²⁹ The existing standard has no clear information about duration and frequency and implementing the current standard requires a detailed case-by-case analysis to determine whether the wild rice beneficial use exists.²³⁰

142. According to the MPCA, failing to adopt the proposed revisions will result in continued uncertainty and the attendant need for case-by-case interpretation as to whether or not a water used for the production of wild rice is downstream of a discharge.²³¹ This confusion results in delays in the permitting process and increased costs of permit design and review.²³²

²²³ Rulemaking eComment from Rep. Mike Sundin (filed Nov. 21, 2017).

²²⁴ Ex. 1029.

²²⁵ MPCA's Response to Public Comments at 11 (filed Nov. 22, 2017).

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ Ex. D at 189.

²²⁹ *Id.*

²³⁰ *Id.*

²³¹ *Id.*

²³² *Id.*

143. The MPCA states that the second problem is the existing numeric sulfate standard's lack of accuracy in protecting wild rice beneficial use.²³³ The MPCA maintains that current scientific understanding of sulfate toxicity means that the existing standard may be, depending on the circumstances, either over-protective or under-protective.²³⁴ By retaining the existing standard and not adopting the proposed equation-based approach, the MPCA believes there will be higher misclassification rates and less accurate and effective protection of wild rice.²³⁵

144. The MPCA also contends that failing to adopt the proposed equation-based standard will result in less effective protection of wild rice, negatively impacting the economic, ecological, and cultural benefits provided by wild rice waters.²³⁶

145. Many commenters urged the MPCA to not adopt the proposed rule and to instead retain the existing 10 mg/L standard.²³⁷ These commenters noted that keeping the existing 10 mg/L standard would be easier to enforce and more cost effective than trying to implement the proposed equation.²³⁸

146. Many commenters also agreed that the sulfate standard should be enforced year-round as proposed in the rule, rather than just during the wild rice growing season as required by the existing rule.²³⁹

147. The Administrative Law Judge concludes that the Agency conducted the analysis required by Minn. Stat. § 14.131(6).

(7) An assessment of any differences between the proposed rules and existing federal regulation and a specific analysis of the need for and reasonableness of each difference.

148. The MPCA states that there is no federal counterpart to the equation-based sulfate standard for wild rice waters or the process for identifying wild rice waters.²⁴⁰ Therefore, it is not possible to assess any differences between the proposed rule revisions and existing federal regulations. The MPCA maintains, however, that the proposed revisions are consistent with the intent of the CWA as well as reasonable interpretations of federal guidance and the federal expectation that states develop state-specific water quality standards.²⁴¹

²³³ Ex. D at 190.

²³⁴ *Id.*

²³⁵ *Id.*

²³⁶ Ex. D at 193.

²³⁷ *See, e.g.*, Rulemaking eComment from Kris Wegerson (filed Nov. 21, 2017).

²³⁸ *Id.*

²³⁹ Ex. 1020.

²⁴⁰ Ex. D at 197.

²⁴¹ *Id.*

149. No other state has established a beneficial use class for wild rice or established a sulfate standard applicable to wild rice.²⁴²

150. The Grand Portage and Fond du Lac Bands of the Minnesota Chippewa Tribe have each established a water quality standard for wild rice.²⁴³ The water quality standards for both tribes generally define wild rice areas as bodies of water that “presently has or historically had the potential to sustain the growth of wild rice.” Both also establish a numeric sulfate standard of 10 mg/L.²⁴⁴

151. The MPCA’s current wild rice sulfate standard and proposed revisions to the wild rice sulfate standard differ from the tribal standards as follows:

a. The proposed revisions clarify the existing beneficial use to “the use of the grain of wild rice as a food source for wildlife and humans.”

b. The proposed rule revisions apply the standard to identified wild rice waters based on supporting the beneficial use. The tribal standards apply the standards more broadly to waters on the basis of past, present, or future potential to sustain growth of wild rice.

c. The existing state rules apply the sulfate standard “during periods when the rice may be susceptible to damage by high sulfate levels.” The proposed revisions apply the sulfate standard as an annual average that can be exceeded once in ten years. The Grand Portage tribal standards do not specify when the standard applies. The Fond du Lac sulfate standard is an instantaneous maximum limit.

d. The proposed revisions to the state sulfate standard establish the protective sulfate value through an equation rather than a fixed 10 mg/L standard. Both tribal sulfate standards are fixed numeric standards of 10mg/L.²⁴⁵

152. The Administrative Law Judge finds that the Agency failed to discuss the definition of “existing use” under the CWA, and how its decision to exclude certain waters previously identified as wild rice waters corresponds with the CWA’s definition of “existing use.” Therefore, the Administrative Law Judge determines that the Agency has not met its obligation under Minn. Stat. § 14.131(7) to assess the differences between the proposed rule and federal regulations and the reasonableness of each difference.

153. The Administrative Law Judge notes that the Agency failed to address the potential conflict between the 10 mg/L sulfate standard on the Fond du Lac and Grand Portage Indian Reservations and the proposed equation-based sulfate standard. While this failure may not technically violate the requirements of Minn. Stat. § 116.07, subd. 2(f) (2016), the Administrative Law Judge views this as a violation of the underlying purpose of this statutory requirement.

²⁴² *Id.*

²⁴³ *Id.*; SONAR Exs. 45 and 46.

²⁴⁴ Ex. D at 197; SONAR Exs. 45 and 46.

²⁴⁵ Ex. D at 197-198; SONAR Exs. 45 and 46.

154. The Administrative Law Judge finds that the Agency has met its special obligations under Minn. Stat. § 116.07, subd. 2(f), to assess the impact of the proposed rule and the approaches taken by neighboring states.

(8) Assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.

155. “Cumulative effect” means the incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor, but collectively significant, rules adopted over a period of time.²⁴⁶

156. As noted above, there is no federal counterpart to the wild rice sulfate standard. Therefore, there is no cumulative effect to assess with respect to other federal regulations.

157. The MPCA maintains that, because it is replacing the existing water quality standard and not proposing an additional standard, the revised standard does not create cumulative impacts.²⁴⁷ According to the MPCA, an assessment of whether a regulation has a cumulative effect is “whether the proposed revisions duplicate an existing rule that achieves the same purpose.”²⁴⁸

158. The Administrative Law Judge disagrees that this is the proper analysis for the question of cumulative effect. The Administrative Law Judge looks first to the plain language of the word “cumulative.” The first dictionary definition of “cumulative” is “increasing by successive additions.”²⁴⁹ “Duplicative,” in contrast, means “consisting of or existing in two corresponding or identical parts or examples.”²⁵⁰

159. The legislative history of Minn. Stat. § 14.131(8) demonstrates that Minnesota legislators were not concerned with agencies promulgating rules that were duplicative. They were concerned with regulations that have an increasing effect on regulated parties. At a hearing before the Senate Committee on Finance when the “cumulative effect” language was under consideration, the MPCA’s legislative director spoke to the committee:²⁵¹

One example [is] our agency deals with hazardous waste, medical waste. As we deal on the disposal side of it, once it gets to a landfill. However, up the chain of control of that issue that is handled by a number of additional

²⁴⁶ Minn. Stat. § 14.131.

²⁴⁷ Ex. D at 199.

²⁴⁸ *Id.*

²⁴⁹ Merriam-Webster online dictionary, <https://www.merriam-webster.com/dictionary/cumulative>.

²⁵⁰ Merriam-Webster online dictionary, <https://www.merriam-webster.com/dictionary/duplicative>.

²⁵¹ Testimony of Kirk Koudelka, legislative director, MPCA before Senate Comm. On Finance, S.F. 1922 (Mar. 29, 2012).

agencies that could have an impact on that. Us then having to do a cumulative effect on how a hospital handles their medical waste or how MnDOT regulates how they transport medical waste before it gets to the landfill.

160. In response to the Committee Chair Robling's concern that the MPCA was not considering the cumulative effect of regulations, and that legislators were hearing from constituents that the cumulative effect was overwhelming,²⁵² Mr. Koudelka replied:²⁵³

For instance, right now we are working on some mercury rules for facilities and their mercury emissions. We do look at what other requirements are on the federal level on that. . . . The way this is written, all other rules that affect that waste, through its chain of command, even though we may not personally have any authority over it, would have to be looked at. There is some concern on what that does to the scope from a number of agencies

161. The Administrative Law Judge finds that the MPCA has not met its obligation to assess the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the proposed rule.

2. Performance-Based Regulation

162. The Administrative Procedure Act²⁵⁴ also requires an agency to describe how it has considered and implemented the legislative policy supporting performance based regulatory systems. A performance-based rule is one that emphasizes superior achievement in meeting the agency's regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals.²⁵⁵

163. The Agency asserts that the proposed rules meet the state's objectives for flexible, performance-based standards. It maintains that the existing WQS are a performance-based regulatory system. The WQS identify, using the best-available science, the conditions that must exist in Minnesota's water bodies to support each waters' designated uses. Because the proposed rules do not dictate how a regulated party must achieve the wild rice beneficial use or prescribe how they must operate to ensure compliance with the WQS, the Agency maintains they allow regulated parties maximum flexibility in meeting the standard. The Agency concedes, however, that, in the case of sulfate treatment, there are limited alternatives and options available to meet the standard. Nonetheless, the Agency contends that, by not dictating a single course of action and by allowing for variances, the proposed rules meet the requirement of emphasizing maximum flexibility for the regulated parties.²⁵⁶

²⁵² Chair Claire A. Robling, Senate Comm. On Finance, S.F. 1922 (Mar. 29, 2012).

²⁵³ Testimony of Kirk Koudelka, legislative director, MPCA before Senate Comm. On Finance, S.F. 1922 (Mar. 29, 2012).

²⁵⁴ Minn. Stat. § 14.131.

²⁵⁵ Minn. Stat. § 14.002.

²⁵⁶ Ex. D at 201.

164. The Administrative Law Judge finds that the Agency has met the requirements set forth in Minn. Stat. § 14.131 for consideration and implementation of the legislative policy supporting performance-based regulatory systems.

3. Consultation with the Commissioner of Minnesota Management and Budget (MMB)

165. By memorandum dated September 7, 2017, Sean Fahnhorst, an Executive Budget Officer with MMB, responded to the MPCA's request to evaluate the fiscal impact and benefit of the proposed rules on local units of government, as required by Minn. Stat. § 14.131.²⁵⁷ The MPCA estimates that the 62 municipal wastewater treatment plants that discharge into or within 25 miles upstream of identified wild rice waters are most likely to incur major costs to upgrade their treatment processes to comply with these revised standards.²⁵⁸ The MPCA provided a "preliminary analysis of the costs" in its SONAR and indicated that it expects to complete further analysis of the costs and alternatives of sulfate treatment by May 2018.²⁵⁹

166. MMB reviewed the proposed rules and the Agency's SONAR. MMB noted that municipal wastewater treatment plants are generally not designed to remove sulfate and that upgrades to existing facilities will be non-standard and require site-specific analysis and engineering testing. MMB noted further that few options exist for removing sulfate from wastewater, and the methods available can be very expensive. MMB concluded that cost estimates for upgrades are only possible with detailed wastewater treatment plant design information.²⁶⁰

167. MMB also noted that the MPCA expects to grant variances to some municipal wastewater treatment facilities, which would exempt them from discharge limits related to this standard if they demonstrate that economic or technological factors prevent their compliance. Local governments would incur administrative costs applying for the variance, but the MPCA proposes to reduce some of these expenses by waiving the variance application fee and assisting municipalities with the application process.²⁶¹

168. Finally, MMB noted that, in terms of fiscal impacts, the proposed rules may benefit some local governments by identifying nearby wild rice waters, clarifying wastewater regulations and standards, and attracting tourists.²⁶²

169. The purpose of the consultation with MMB required by Minn. Stat. § 14.131 is "to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government."²⁶³ In this case, given the scarcity of information available about the

²⁵⁷ Ex. K3.

²⁵⁸ *Id.*

²⁵⁹ *Id.*

²⁶⁰ *Id.*

²⁶¹ Ex. K3.

²⁶² *Id.*

²⁶³ Minn. Stat. § 14.131.

actual costs and benefits that are likely to accrue to local governments, the MMB memorandum reaches no conclusions regarding the adequacy of the information and analysis provided by the Agency. Nor is MMB provided with enough information to engage in its own evaluation of the fiscal impacts and benefits of the proposed rule on units of local government.

170. The Administrative Law Judge finds that the Agency consulted with MMB as required under Minn. Stat. § 14.131, but failed to provide adequate information to help MMB evaluate the fiscal impacts and benefits of the proposed rule on units of local government.

4. Cost to Small Businesses and Cities under Minn. Stat. § 14.127

171. Minn. Stat. § 14.127 requires the Agency to “determine if the cost of complying with a proposed rule in the first year after the rule takes effect will exceed \$25,000 for: (1) any one business that has less than 50 full-time employees; or (2) any one statutory or home rule charter city that has less than ten full-time employees.” The Agency must make this determination before the close of the hearing record, and the Administrative Law Judge must review the determination and approve or disapprove it.²⁶⁴

172. The Agency concludes that a small business or city within the definition of Minn. Stat. § 14.127 may incur expenses in excess of \$25,000 to comply with the proposed rule in the first year after the rule takes effect. However, the Agency believes that such a circumstance is unlikely to occur within a year after the rule takes effect.²⁶⁵

173. The Agency discusses the criteria it developed that are necessary to determine which small businesses and cities could potentially be included in an analysis pursuant to Minn. Stat. § 14.127. The criteria identified by the Agency are as follows:

- a. The business or city must discharge to a surface water.
- b. The surface water receiving the discharge must be a wild rice water or within a certain range of a wild rice water. For purposes of this evaluation, the MPCA selected a range of 25 miles.
- c. The discharge must contain sulfate.
- d. The affected business must have fewer than 50 full-time employees. Affected cities must have fewer than 10 full time employees.
- e. The business or city must need to obtain a new or re-issued permit within the first year after the rules are adopted.
- f. The MPCA must have sufficient information available to develop an effluent limit – including sediment data to set the numeric standard

²⁶⁴ Minn. Stat. § 14.127, subds. 1 and 2.

²⁶⁵ Ex. D at 202.

for the receiving wild rice water, sulfate levels in the receiving water, and data on sulfate concentrations in the business or city's effluent.

- g. The application of the adopted sulfate standard must result in effluent limits that are more stringent.
- h. The business or city must incur costs of more than \$25,000 in the first year following adoption of the proposed revisions for planning, installation, or operation activities specifically to meet the revised standard.²⁶⁶

174. Using these criteria, the Agency calculates that, of the 135 dischargers within 25 miles of a regulated wild rice water, there are approximately 75 small businesses and cities that may be affected by the proposed revisions and currently have permits. Because the MPCA issues permits to dischargers on a five-year schedule, fewer than 75 will be required apply for a permit under the new standard in the first year. Nonetheless, assuming the rule is adopted in mid-2018,²⁶⁷ the MPCA estimates that more than 60 dischargers will at least begin the process of updating their existing permits in 2018.²⁶⁸

175. According to the Agency, permit issuance or renewal involves “setting effluent limits, developing and reviewing plans and specifications, permit notice and approval, and construction activities.”²⁶⁹ In addition, the Agency recognizes that “dischargers may have to make a significant initial investment in planning and preliminary design work in advance of receiving the permit.”²⁷⁰

176. The Agency explains that the cost driver for dischargers is the implementation of a sulfate effluent limit in a permit, which requires the discharger to take action to either limit the sulfate in its discharge or to request a variance. Before a discharger can be assigned an effluent limit, the MPCA must know the numeric sulfate standard applicable to the receiving wild rice water. In addition, the discharger's sulfate effluent concentrations must be available.²⁷¹

177. The Agency states that a majority of dischargers do not have current effluent monitoring for sulfate. For these dischargers, the Agency estimates that sulfate limits could not be implemented before 2023.²⁷²

178. According to the Agency, only if a small business or city receives a more stringent effluent limit than was required under the existing standard will it have higher treatment costs than it would have had under the 10 mg/L standard, or incur the costs of applying for a variance.²⁷³ However, a facility will not know whether its effluent limit is

²⁶⁶ Ex. D at 204.

²⁶⁷ *Id.* at 202.

²⁶⁸ *Id.* at 206.

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ *Id.* at 207.

²⁷² *Id.*

²⁷³ *Id.*

more or less than it would be under the existing standard until the new standard has been set for the receiving wild rice water.²⁷⁴

179. The Agency does not explain why it estimates that it will take dischargers five years to monitor their own sulfate discharges.

180. Furthermore, the Agency states that it expects to take up to ten years to sample the 1,300 regulated wild rice waters identified in the proposed rule for the purpose of setting new standards.²⁷⁵

181. Nonetheless, for purposes of the rulemaking evaluation, the MPCA assumes that all the identified dischargers will have to either meet more stringent sulfate discharge limits or apply for variances. The cost to treat wastewater to remove sulfate is extremely high. The MPCA recognizes that the most effective treatment option at this time to remove sulfate from wastewater is an RO membrane treatment system.²⁷⁶ The cost of designing, building and operating an RO system will certainly exceed \$25,000. However, the MPCA expects permittees will not incur the full cost of treatment or design/build in the first year after adoption of the proposed rules.²⁷⁷

182. The MPCA expects that WWTPs that meet the above criteria may incur costs in the first year after the rules are adopted. Costs could include retaining a contractor or designer to begin the process of evaluating discharge and treatment options, among other items. The WWTP could also begin the process of bench-scale studies and facility design, although the MPCA believes a variance application is more likely. The MPCA notes that the cost of a variance alone could exceed \$25,000, especially for an industrial facility for which there is no variance fee waiver in the rule. However, the MPCA does not presume that the cost of a variance for a municipality would necessarily be less than \$25,000.²⁷⁸

183. The MPCA cannot estimate the cost of these activities “because of the extent of the variables,”²⁷⁹ but the Agency concludes that such costs will “be significant” and “may exceed \$25,000”²⁸⁰ for some small businesses and cities in the first year after adoption of the proposed revisions.²⁸¹

184. While the MPCA’s analysis pursuant to Minn. Stat. § 14.127 discusses the question of whether small businesses and cities will spend more than \$25,000 to comply with the proposed rule within one year after the rule is adopted, the statutory language

²⁷⁴ Ex. D at 207.

²⁷⁵ Response Cover Memo at 10.

²⁷⁶ Ex. D at 207.

²⁷⁷ *Id.*

²⁷⁸ Ex. D at 208.

²⁷⁹ *Id.*

²⁸⁰ *Id.*

²⁸¹ *Id.*

requires this analysis to focus on the “cost of complying with a proposed rule in the first year after the rule takes effect”²⁸²

185. Because MPCA predicts that it will likely take five to ten years to sample the regulated wild rice waters identified in the proposed rule for the purpose of setting new standards that will provide the basis for new effluent limits, the Administrative Law Judge finds that the rule cannot take effect for purposes of the Agency’s analysis under Minn. Stat. § 14.127 until the necessary sediment and porewater sampling have been completed and new sulfate standards calculated pursuant to the equation standard in the proposed rule.

186. Any attempt to perform the analysis required by Minn. Stat. § 14.127 is based on conjecture regarding whether and to what extent any given small business or city that meets the criteria outlined by the MPCA will be subject to a more stringent effluent limit once a new standard is determined for receiving waters subject to the wild rice sulfate rules.

187. The legislature’s purpose in enacting Minn. Stat. § 14.127 was to better understand the impact of its regulatory delegations. For example, in its 1993 review of Minnesota’s rulemaking process, the State Commission on Reform and Efficiency observed that the legislature is often “not aware of the specific costs of preparing and adopting the rules it authorizes or requires” and “lacks cost information when considering bills authorizing rulemaking.”²⁸³ In this context, the provisions of Minn. Stat. § 14.127 operate as a check against the legislature misjudging the cost of regulatory programs when it delegates rulemaking authority.

188. The structure and text of the exemptions in Minn. Stat. § 14.127, subd. 4, confirm this conclusion. Subdivision 4 provides that there is no safe harbor from regulatory compliance for small cities and small businesses when:

- a. the legislature has appropriated sufficient funds for the costs of complying with the proposed rule;
- b. the proposed rule follows from “a specific federal statutory or regulatory mandate”;
- c. the rules were promulgated under the limited exemption of the “good cause exempt” rulemaking procedure;
- d. the legislature exempted the proposed rules from compliance with Chapter 14 rulemaking procedures;
- e. the rules were promulgated by the Public Utilities Commission; or

²⁸² Minn. Stat. § 14.127 (emphasis added).

²⁸³ See Finding 6, *Reforming Minnesota’s Administrative Rulemaking System* (State Commission on Reform and Efficiency, 1993.).

- f. the Governor waives the safe-harbor provisions by filing a notice with both houses of the legislature and publishing the same in the *State Register*.

189. These exemptions reflect an underlying legislative assumption that delegated rulemaking authority will not result in compliance costs of more than \$25,000 for a small city or small business during the first year. If that cost assumption is not generally true for a particular agency (such as the Public Utilities Commission), or untrue with respect to a particular program (such that appropriation accompanies the rulemaking delegation), one of the listed exemptions will apply. In all other cases, the legislature offers the affected stakeholders the opportunity to revisit the question of compliance costs with the legislature and the agency.²⁸⁴

190. The Agency's application of the statute significantly narrows the protections for small businesses and small cities. Under Minn. Stat. § 14.127, a qualifying small city or small business may opt out of costly regulatory programs by filing "a written statement with the agency claiming a temporary exemption from the rules"²⁸⁵ until "the rules are approved by a law enacted after the agency determination or administrative law judge disapproval."²⁸⁶ Because, according to the MPCA, the small businesses and cities it has identified as potentially affected by \$25,000 limitation in Minn. Stat. § 14.127 will not know for certain whether their effluent limits will be more or less stringent until the new sulfate standards are calculated, it is not technically possible for any small city or business to claim that it must spend \$25,000 in order to comply with the new sulfate standards. Thus, the Agency's attempt to implement a rule without definite standards runs afoul of the statutory language of Minn. Stat. § 14.127, despite the Agency's finding that some small businesses and cities may spend \$25,000 within a year after the proposed rule is adopted.

191. The Administrative Law Judge finds that the Agency has made a determination required by Minn. Stat. § 14.127, but that determination is not adequately supported in the rulemaking record. The hearing record does not establish that the compliance costs for any one qualifying small city or small business will be more than \$25,000 in the first year following the adoption of the proposed rule because the hearing record does not establish that the compliance costs for any one qualifying small city or small business will be known within one year of adoption of the proposed rule.

192. The cost determination under Minn. Stat. § 14.127 is disapproved.

193. The result of this cost determination disapproval would usually be that any small business or city that must spend more than \$25,000 to comply with this rule can file a statement with the Agency pursuant to Minn. Stat. § 14.127, subd. 3, claiming a temporary exemption pending further action by the legislature. Because the basis for the disapproval is that the Agency has failed to provide the information required to make a

²⁸⁴ Minn. Stat. § 14.127, subd. 3.

²⁸⁵ *Id.*

²⁸⁶ *Id.*

finding under Minn. Stat. § 14.127, it is not possible for a small city or business to claim a temporary exemption at this time without further action by the Agency.

5. Adoption or Amendment of Local Ordinances

194. Under Minn. Stat. § 14.128 (2016) the Agency must determine if a local government will be required to adopt or amend an ordinance or other regulation to comply with a proposed agency rule. The Agency must make this determination before the close of the hearing record, and the Administrative Law Judge must review the determination and approve or disapprove it.²⁸⁷

195. The Agency states that, because state water quality standards are not implemented at the local level, no changes will be required to local ordinances or regulations in response to the proposed rule revisions. The Agency notes, however, that local units of government that own or operate a WWTP may be subject to additional conditions on discharges due to the proposed revisions. For example, a city may require pre-treatment of high sulfate wastewater or charge a higher fee for discharge of sulfate to the municipal WWTP. These conditions may be in the form of an ordinance or regulation, but they are not specifically required by the proposed rules.²⁸⁸

196. The Administrative Law Judge finds that the Agency has made the determination required by Minn. Stat. § 14.128 and approves that determination.

6. Economic Analysis and Identification of Cost-Effective Permitting

197. Pursuant to a 2015 Minnesota Session Law,²⁸⁹ the MPCA is required to consider the effect the proposed revisions will have on MPCA's permit process for industrial and municipal dischargers.²⁹⁰

198. The MPCA states that it considered the effects its proposed revisions will have on the permit process and it recognizes that, for some dischargers, the proposed rules may result in substantial costs.²⁹¹

199. The MPCA expects that, in most cases, dischargers can only meet the proposed sulfate standard by using membrane treatment. The MPCA recognizes that the current options for treating sulfate are costly and complex.²⁹²

²⁸⁷ Minn. Stat. § 14.128, subd. 1. Moreover, a determination that the proposed rules require adoption or amendment of an ordinance may modify the effective date of the rule, subject to some exceptions. Minn. Stat. § 14.128, subs. 2 and 3.

²⁸⁸ Ex. D at 201.

²⁸⁹ 2015 Minn. Laws 1st Spec. Sess. ch. 4, art. 3, § 2, subd. 2 (authorizing funds for “enhanced economic analysis in the water quality standards rulemaking process, including more specific analysis and identification of cost-effective permitting.”).

²⁹⁰ Ex. D at 209-213.

²⁹¹ *Id.* at 209.

²⁹² *Id.*

200. The MPCA states that industrial dischargers could encounter substantial treatment costs if sulfate effluent limits are included in NPDES/SDS permits. The industries most likely to be affected include ethanol producers, food processors, power plants, ferrous (taconite) mining and processing, and any potential non-ferrous mining. The taconite industry on the Mesabi Iron Range is likely to be the most affected of the industrial categories because of the prevalence of wild rice in that region, the amount of sulfate generated by mining and processing, the aggregate volume of water discharged, and the elevated sulfate concentrations from legacy mining.²⁹³

201. The MPCA notes that variances from water quality standards are a permitting tool that may be used to temporarily address uncertain or costly treatment alternatives.²⁹⁴ The MPCA expects variances to become an increasingly necessary component of the permit process as more stringent water quality-based effluent limits are implemented.²⁹⁵ In considering a variance, the MPCA must determine the point at which costs would result in substantial and widespread negative economic and social impact such that compliance with the standard is not feasible.²⁹⁶ All variances from a water quality standard are subject to final approval by the United States Environmental Protection Agency (EPA).²⁹⁷

202. Because the proposed sulfate effluent limits may prompt an increase in variance requests, the MPCA is considering implementing a streamlined variance process. According to the MPCA, the streamlined process will define the information required for obtaining final approval from the EPA and allow ample time for a discharger to consider its permitting options. The MPCA maintains that the streamlined process will reduce permitting uncertainty and application review time and result in more cost-effective permitting.²⁹⁸

203. The Administrative Law Judge concludes the Agency has made the analysis required under 2015 Minn. Laws 1st Spec. Sess. ch. 4, art. 3, § 2, subd. 2, given the limited information available.

7. External Review Panel

204. The Agency is required to convene an external review panel during the promulgation or amendment of a water quality standard, or state in the SONAR why such a panel was not convened.²⁹⁹

205. The MPCA conducted an external peer review on the state-sponsored wild rice study in 2014.³⁰⁰ The report of the peer review panel was released in September

²⁹³ *Id.* at 209-210.

²⁹⁴ Ex. D at 210.

²⁹⁵ *Id.*

²⁹⁶ *Id.*

²⁹⁷ *Id.*

²⁹⁸ Ex. D at 216.

²⁹⁹ See Minn. Stat. § 115.035 (2016).

³⁰⁰ Ex. D at 217.

2014.³⁰¹ The names and affiliations of the peer reviewers are provided in Table 19 of the SONAR.³⁰² The MPCA states that the report of the peer review panel informed its analysis and interpretation of data regarding the effect of sulfate on wild rice and that analysis is reflected in its March 2015 draft proposal.³⁰³

206. The Administrative Law Judge finds that the Agency met the requirement of Minn. Stat. § 115.035 regarding external review panels.

IV. Rulemaking Legal Standards

207. The Administrative Law Judge must make the following inquiries: whether the agency has statutory authority to adopt the rule; whether the rule is unconstitutional or otherwise illegal; whether the agency has complied with the rule adoption procedures; whether the proposed rule grants undue discretion to government officials; whether the rule constitutes an undue delegation of authority to another entity; and whether the proposed language meets the definition of a rule.³⁰⁴

208. Under Minn. Stat. § 14.14, subd. 2 and Minn. R. 1400.2100 (2017), the agency must establish the need for, and reasonableness of, a proposed rule by an affirmative presentation of facts. In support of a rule, the agency may rely upon materials developed for the hearing record,³⁰⁵ “legislative facts” (namely, general and well-established principles that are not related to the specifics of a particular case but which guide the development of law and policy),³⁰⁶ and the agency’s interpretation of related statutes.³⁰⁷

209. A proposed rule is reasonable if the agency can “explain on what evidence it is relying and how the evidence connects rationally with the agency’s choice of action to be taken.”³⁰⁸ By contrast, a proposed rule will be deemed arbitrary and capricious where the agency’s choice is based upon whim, devoid of articulated reasons or “represents its will and not its judgment.”³⁰⁹

210. An important corollary to these standards is that when proposing new rules an agency is entitled to make choices between different possible regulatory approaches, so long as the alternative that is selected by the agency is a rational one.³¹⁰ Thus, while reasonable minds might differ as to whether one or another particular approach

³⁰¹ *Id.*; SONAR Ex. 9.

³⁰² Ex. D at 217.

³⁰³ *Id.*; SONAR Ex. 10.

³⁰⁴ See Minn. R. 1400.2100.

³⁰⁵ See *Manufactured Housing Institute v. Petterson*, 347 N.W.2d 238, 240 (Minn. 1984); *Minnesota Chamber of Commerce v. Minnesota Pollution Control Agency*, 469 N.W.2d 100, 103 (Minn. Ct. App. 1991).

³⁰⁶ Compare generally *United States v. Gould*, 536 F.2d 216, 220 (8th Cir. 1976).

³⁰⁷ See *Mammenga v. Agency of Human Services*, 442 N.W.2d 786, 789-92 (Minn. 1989); *Manufactured Manufactured Hous. Inst.*, 347 N.W.2d at 244.

³⁰⁸ *Manufactured Hous. Inst.*, 347 N.W.2d at 244.

³⁰⁹ See *Mammenga*, 442 N.W.2d at 789; *St. Paul Area Chamber of Commerce v. Minn. Pub. Serv. Comm'n*, 251 N.W.2d 350, 357-58 (Minn. 1977).

³¹⁰ *Peterson v. Minn. Dep't of Labor & Indus.*, 591 N.W.2d 76, 78 (Minn. Ct. App. 1999).

represents “the best alternative,” the agency’s selection will be approved if it is one that a rational person could have made.³¹¹

211. Because both the Agency and the Administrative Law Judge suggested changes to the proposed rule language after the date it was originally published in the *State Register*, it is also necessary for the Administrative Law Judge to determine if this new language is substantially different from that which was originally proposed.

212. The standards to determine whether any changes to proposed rules create a substantially different rule are found in Minn. Stat. § 14.05, subd. 2(b). The statute specifies that a modification does not make a proposed rule substantially different if:

- (1) the differences are within the scope of the matter announced . . . in the notice of hearing and are in character with the issues raised in that notice;
- (2) the differences are a logical outgrowth of the contents of the . . . notice of hearing, and the comments submitted in response to the notice; and
- (3) the . . . notice of hearing provided fair warning that the outcome of that rulemaking proceeding could be the rule in question.

213. In reaching a determination regarding whether modifications result in a rule that is substantially different, the Administrative Law Judge must consider whether:

- (1) persons who will be affected by the rule should have understood that the rulemaking proceeding . . . could affect their interests;
- (2) the subject matter of the rule or issues determined by the rule are different from the subject matter or issues contained in the . . . notice of hearing; and
- (3) the effects of the rule differ from the effects of the proposed rule contained in the . . . notice of hearing.³¹²

V. Analysis of the Proposed Rule

214. There were few sections of the proposed rule that were not opposed by any member of the public. This Report will first address the three portions of the rule that are central to its function and design: Minn. R. 7050.0224, subp. 2, which proposes to repeal the 10 mg/L sulfate standard; Minn. R. 7050.0224, subp. 5, B (1), which proposes to replace the 10 mg/L standard with the equation-based sulfate standard; and Minn. R. 7050.0471, subps. 3-9, which proposes the list of waters to be included as class 4D waters to be protected by the wild rice sulfate standard.

³¹¹ *Minnesota Chamber of Commerce*, 469 N.W.2d at 103.

³¹² See Minn. Stat. § 14.05, subd. 2.

A. Repeal of the 10 mg/L Sulfate Standard

215. Minn. R. 7050.0224, subp. 2, proposes to repeal the 10 mg/L sulfate standard applicable to wild rice waters, which are currently classified as Class 4A waters.³¹³

216. Minn. R. 7050.0220, subps. 3a, 4a, 5a, and 6a, propose to delete references to the 10 mg/L sulfate wild rice water standard.³¹⁴

217. A number of commenters support repeal of the 10 mg/L sulfate standard as it applies to wild rice waters, without regard to whether they are re-classified as Class 4D waters or remain classified as Class 4A waters.³¹⁵

218. The MPCA responded that the decision to repeal the 10 mg/L standard “is not separate from moving forward with the proposed equation.”³¹⁶ Because the MPCA has determined that sulfate negatively affects wild rice, albeit indirectly rather than directly, the MPCA determined that “[i]t is not scientifically defensible to conclude that simply eliminating the existing sulfate standard would protect” wild rice.³¹⁷

219. The 1854 Treaty Authority, the Fond du Lac Band of Lake Superior Chippewa, the Grand Portage Band of Chippewa, WaterLegacy, and numerous individuals oppose repeal of the 10 mg/L sulfate standard.³¹⁸ These commenters and others express concerns that increases in sulfate could lead to increases in methyl mercury, which bio-accumulates in fish, has long-term serious health effects on humans, and is especially dangerous to developing fetuses.³¹⁹ Some commenters also question

³¹³ Ex. C at 7.16, proposed Minn. R. 7050.0224, subp. 5.

³¹⁴ Ex. C at 3.16, 4.11, 5.7, 5.23, proposed Minn. R. 7050.0220, subps. 3a, 4a, 5a, and 6a.

³¹⁵ Test. of Rob Beranek, Oct. 23 Tr. at 91; eComment from Kurt Anderson on behalf of Minnesota Power at 7 (Minnesota Power comment) (Nov. 21, 2017); eComment from Elizabeth Wefel on behalf of Coalition of Greater Minnesota Cities at 1-2 (Coalition of Greater MN Cities comment) (Nov. 22, 2017); Test. of Chrissy Bartovich, Oct. 24, 2017 Tr. at 82; Test. of Jason Metsa, Oct. 24, 2017 Tr. at 104; Letter from Iron Range Mayors (Hoyt Lakes, Ely, Virginia, Nashwauk, Aurora, Biwakkik, Grand Rapids, Hibbing, Babbitt, Mountain Iron) at 1 (Nov. 6, 2017); Letter from Iron Range Legislative Delegation (Senators David Tomassoni, Thomas Bakk, and Justin Eichorn, and Representatives Jason Metsa, Rob Ecklund, Julie Sandstede, Dale Lueck, and Sandy Layman) (Nov. 2, 2017).

³¹⁶ MPCA Response, Att. 1 at 24.

³¹⁷ MPCA Response at 3.

³¹⁸ eComment from Paula Maccabee on behalf of WaterLegacy at 11-12, 55-56 (WaterLegacy comment), (eComment filed Nov. 22, 2017); Letter from Darren Vogt at 5 (Nov. 21, 2017); eComment from Nancy Schuldt at 25 (Nov. 22, 2017); Test. of Dennis Scymialis, Oct. 26, 2017, Tr. at 70; Test. of Tom Thompson, Oct. 26, 2017, Tr. at 75. Some commenters objected to the Agency’s classification of wild rice waters as class 4 waters rather than class 2 waters. Test. of Margaret Watkins, Oct. 26, 2017, Tr. at 89-90, Hearing Ex. 1020 (Letter from Dennis Morrison on behalf of Grand Portage Tribal Reservation Council at 8 and Letter from Robert L. Larsen on behalf of Minnesota Indian Affairs Council at 2).

³¹⁹ Test. of Dave Zentner, Oct. 26 Tr. at 117; Test. of Dr. Emily Onello, Oct. 26, 2017, Tr. at 68; Test. of Margaret Watkins, Oct. 26, 2017, Tr. at 89-90, Hearing Ex. 1020 (Letter from Dennis Morrison on behalf of Grand Portage Tribal Reservation Council at 8 and Letter from Robert L. Larsen on behalf of Minnesota Indian Affairs Council at 2).

whether the extraordinary nutritional value – and health benefits – of wild rice will be degraded by increased surface water sulfate levels.³²⁰

220. In response to the concerns raised about the effect of increased sulfate concentrations on the methylation of mercury, the MPCA acknowledges that “increased concentrations of sulfate have been shown to increase the methylation of mercury in aquatic systems where organic carbon is available and especially where background sulfate concentrations are low.” The MPCA agrees that “enhanced production of methylmercury is a significant concern.”³²¹

221. Despite these concerns, and while acknowledging that it is “very concerned about actions that might increase the mercury content of fish,” the Agency notes that “in a formal sense,” the scope of this rulemaking does not encompass the effects of sulfate on the methylation of mercury.³²² The MPCA reports that it is “conducting a significant separate study concerning the factors that control mercury in fish.”³²³ At this time, the Agency states that it has determined

that the relationship between sulfate and mercury methylation is significantly more complicated than the relationship between sulfate and sulfide on which the proposed wild rice rule is based. Therefore, it would be even more challenging to develop a proposed sulfate standard that addresses the role of sulfate in the potential for production of methylmercury.³²⁴

For these reasons, the Agency states, it is not making “any decisions as how to proceed on the question of enhanced mercury methylation until the results of the ongoing major study are available.”³²⁵

222. Both the Fond du Lac Band and the Grand Portage Band of Lake Superior Chippewa have wild rice water quality standards that limit sulfates to 10 mg/L. Each Band has authority to set water quality standards on its reservation, and the EPA has approved the standard for each Band.³²⁶

223. The CWA requires that, any time a state revises or adopts a new water quality standard, the standard “shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of” the CWA.³²⁷ Standards “shall

³²⁰ Test. of Dr. Emily Onello, Oct. 26, 2017, Tr. at 68-69; Test. of Dr. Debby Allert, Oct. 26, 2017, Tr. at 107-112, Hearing Ex. 1024 (Materials submitted by Dr. Allert on behalf of Minnesota Academy of Family Physicians).

³²¹ MPCA Response Att. 1 at 21 (Nov. 22, 2017).

³²² *Id.*

³²³ *Id.*

³²⁴ *Id.*

³²⁵ *Id.*

³²⁶ Hearing Ex. 1020 (Letter from Dennis Morrison on behalf of Grand Portage Tribal Reservation Council at 11; Test. of Nancy Schuldt at 96 (Oct. 26, 2017); eComment from Paula Maccabee on behalf of WaterLegacy at 15 (eComment filed Nov. 22, 2017).

³²⁷ 33 U.S.C. § 1313 (c).

be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes”³²⁸ The federal regulations also require the state to “take into consideration the water quality standards of downstream waters and . . . ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.”³²⁹

224. Minn. R. 7050.0155 requires that “[a]ll waters must maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters, including the waters of another state.”

225. The MPCA has proposed that the maximum value of sulfate which could result in application of the proposed equation-based standard would be 838 mg/L,³³⁰ a standard more than 80 times the current standard of 10 mg/L.

226. In the face of challenges raised by the public concerning increased mercury methylation, further harm to wild rice, and degradation of waters due to algae blooms as a result of elevated sulfate standards, the MPCA has failed to make an affirmative presentation of facts which demonstrate that, in establishing standards which would allow increased levels of sulfate in wild rice waters, it is protecting the public health or welfare, enhancing the quality of water, and ensuring that the proposed water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters, as required by federal and state law.³³¹ Therefore, the Administrative Law Judge concludes that the proposed repeal of the 10 mg/L wild rice sulfate standard violates Minn. R. 1400.2100.D, prohibiting a rule that conflicts with other applicable law.

227. For the reasons set forth in the following section regarding the equation-based standard, the Administrative Law Judge further concludes that the MPCA has not presented facts adequate to support the reasonableness of the proposed repeal of the 10 mg/L sulfate standard without a replacement standard that is equally or more protective of wild rice waters. Therefore, the proposed rule repealing the 10 mg/L sulfate standard is defective because it violates Minn. R. 1400.2100.B.

³²⁸ 33 U.S.C. § 1313 (c)

³²⁹ 40 C.F.R. § 131.10(b) (2015).

³³⁰ MPCA Rebuttal at 4.

³³¹ The Fond du Lac Band of the Minnesota Chippewa Tribe asserts that the Chippewa retain usufructuary rights to gather wild rice under the Treaties of 1837 and 1854. *Minnesota v. Mille Lacs Band of Chippewa Indians*, 526 U.S. 172, 196 (1999). The Fond du Lac Band, along with the entire Minnesota Indian Affairs Council, believes that equation-based sulfate standard is not proven to be protective of wild rice waters. Hearing Ex. 1020 (Letter from Dennis Morrison on behalf of Grand Portage Tribal Reservation Council at 8 and Letter from Robert L. Larsen on behalf of Minnesota Indian Affairs Council at 2). Therefore, the Fond du Lac Band argues, the State has an obligation under the 1837 and 1854 Treaties to insure that wild rice is not degraded or contaminated. The Fond du Lac Band contends that the proposed equation-based standard will not adequately protect wild rice or, by extension, the Band’s Tribal treaty rights. eComment from Nancy Schuldt at 1,4-5 (Nov. 22, 2017). Because the Administrative Law Judge finds that repeal of the 10 mg/L violates federal and state law, this Report need not reach the treaty-rights arguments.

228. Should the Agency proceed with this rulemaking, it may cure the defect by retaining the 10 mg/L wild rice sulfate standard either by returning to the current wild rice classification as 4A waters, or by applying the 10 mg/L wild rice sulfate standard to wild rice in the 4D classification.

229. The Administrative Law Judge finds that the suggested changes would be needed and reasonable and would not constitute a substantially different rule under Minn. Stat. § 14.05, subd. 2(b).

B. Equation-based Sulfate Standard

230. **Part 7050.0224, subp. 5, B (1)**. As stated above, the MPCA proposed the equation-based sulfate standard to replace the 10 mg/L sulfate standard.

231. Because the Administrative Law Judge has determined that the proposed repeal of the 10 mg/L sulfate standard is not needed or reasonable, the equation-based standard cannot be implemented as part of this rulemaking. Nonetheless, for purposes of the Agency's consideration in future rulemaking procedures, the Administrative Law Judge provides a review of the equation-based standard.

232. **Part 7050.0224, subp. 5, B (1)** contains the equation for the calculated sulfate standard as proposed by the Department. The standard is expressed as milligrams of sulfate ion per liter, as follows:³³²

$$\text{Calculated sulfated standard} = 0.0000121 \times \frac{\text{Iron}^{1.923}}{\text{Organic carbon}^{1.197}}$$

Where:

- (a) organic carbon is the amount of organic matter in dry sediment. The concentration is expressed as percentage of carbon, as determined ~~using~~ consistent with the method for organic carbon analysis in Sampling and Analytical Methods for Wild Rice Waters, which is incorporated by reference in item E;
- (b) iron is the amount of extractable iron in dry sediment. The concentration is expressed as micrograms of iron per gram of dry sediment, as determined ~~using~~ consistent with the method for extractable iron in Sampling and Analytical Methods for Wild Rice Waters, which is incorporated by reference in item E;
- (c) sediment samples are collected ~~using consistent with~~ the procedures established in Sampling and Analytical Methods for Wild Rice Waters; and

³³² Ex. C at lines 7.25-7.26 and 8.1-8.17.

(d) the calculated sulfate standard is the lowest sulfate value resulting from the application of the equation to each pair of organic carbon and iron values collected and analyzed in accordance with units (a) to (c).³³³

233. Many of the commenters rejected the proposed equation-based standard. Concerns about the equation-based standard focused on the implementation of the standard and on the science underlying the equation.

1. Implementation of the Equation-based Standard

234. The equation will require measurements of iron and carbon to be taken from the sediment in each of the 1,300 or more identified wild rice waters. The data will then be inserted into the equation to calculate the equation-based sulfate standard for that particular water.³³⁴ As stated above, the Agency estimates that it will take approximately ten years for agency staff to calculate the standards for the approximately 1,300 waters identified in the proposed rule.³³⁵

235. A number of commenters express concerns that it will take approximately ten years for the Agency to establish the standards under the proposed rule. Some of the concerns are that the Agency's delayed ability to implement the new standards will create confusion, and will defer enforcement of the water quality standards for wild rice waters.³³⁶ Regulated parties assert that they lack the information they need to properly plan for compliance with the standards once they are implemented.³³⁷ Others observe that the Agency has not enforced the 10 mg/L standard for most of the years the existing standard has been in place, and that the Agency, with its limited resources, has not shown that it will have the means to develop the 1,300 individual standards which must be calculated before they can be enforced.³³⁸

236. Cleveland Cliffs, which owns and operates United Taconite and Northshore Mining Company and partially owns and operates Hibbing Taconite, is a major employer on Minnesota's Iron Range. Cleveland Cliffs employs over 1,700 individuals and claims it has a total economic impact to the region of nearly \$900 million.³³⁹ In its post-hearing comments, Cleveland Cliffs asserts that the MPCA's implementation plan for the equation-based standard is unreasonable. Cleveland Cliffs contends that it is unreasonable that the MPCA cannot notify any potentially affected WWTP what revised standard will apply to it because the MPCA has not calculated sulfate standards in

³³³ Ex. C at 8.5-8.17; MPCA Rebuttal Response to Public Comments at 5.

³³⁴ MPCA Rebuttal at 44.

³³⁵ Ex. D at 153-154; MPCA's Response to Public Comments at 10-11 (Nov. 22, 2017).

³³⁶ Comments of Lea Foushee, Oct. 23 Hearing Tr. at 93; (MCEA eComment) at 6-8 (Nov. 22, 2017).

³³⁷ Comments of Chrissy Bartovich, Oct. 24 Hearing Tr. at 82.

³³⁸ Comments of Matt Tuchel, Oct. 24 Hearing Tr. at 151-152; Paula Maccabee letter at 7-11 (Nov. 22, 2017); Dorie Reisenweber, Oct. 26 Hearing Tr. at 106; Dave Zentner, Oct 26 Hearing Tr. at 114; Allen Richardson, Oct. 26 Hearing Tr. at 129; Barbara Cournyea, Oct. 30 Hearing Tr. at 88; Sydney Evans (eComment) (Oct. 23, 2017); Jeff Williams (eComment) (Nov. 2, 2017).

³³⁹ Letter from Rob Beranek at 1 (Nov. 22, 2017) (Beranek Letter).

individual wild rice waters under the proposed rule.³⁴⁰ To demonstrate the inadequacy of the MPCA's regulatory cost analysis,³⁴¹ Cleveland Cliffs cites the MPCA's statements in the SONAR that "sulfate treatment is prohibitively expensive for many dischargers"³⁴² and that "companies might choose to stop operations rather than invest in the treatment needed to meet a revised standard."³⁴³

237. The Agency's response to comments regarding implementation of the equation-based standard is that this water quality rule is not unique:

With any standard, resources are required to collect a sufficient amount of data for implementation. In fact, the MPCA is not convinced that the resources needed to implement the proposed standard revision exceed those needed to implement the existing 10 mg/L sulfate standard if this rulemaking were not to proceed.³⁴⁴

238. In response to commenters' concerns regarding the time needed to develop the individual sulfate limits, the Agency states: "[i]t is not uncommon for data gathering to be necessary before a standard can be fully implemented in permits."³⁴⁵

239. The Agency explains that implementing the current 10 mg/L standard takes time, both because wild rice waters have to be identified and because surface waters have to be analyzed to see whether the 10 mg/L standard is being met.³⁴⁶

240. The Agency plans to make efficient use of its resources by collecting sediment iron and carbon data to develop the new sulfate standards using its existing 10-year intensive watershed monitoring program.³⁴⁷

241. The MPCA acknowledges that, because it does not have the data available to calculate the proposed equation-based standard, it does not know "how many dischargers will be required to install additional treatment"³⁴⁸ or "how many wild rice waters need a standard more stringent than the existing 10 mg/L."³⁴⁹ Similarly, the Agency states in the SONAR, "[b]ecause the number of dischargers who must meet a different limit (either more or less stringent) is not known, it is difficult to quantify the change in environmental costs or benefits based on this rule revision."³⁵⁰

242. In its rebuttal comments, the MPCA states:

³⁴⁰ Beranek Letter at 25-26.

³⁴¹ Beranek Letter at 23.

³⁴² Ex. D at 107.

³⁴³ Ex. D at 148.

³⁴⁴ MPCA Response at 10 (Nov. 22, 2017).

³⁴⁵ MPCA Response, Att. 2 at 39.

³⁴⁶ MPCA Response at 10-11 (Nov. 22, 2017).

³⁴⁷ MPCA Response at 10 (Nov. 22, 2017).

³⁴⁸ Ex. D at 144.

³⁴⁹ Ex. D at 143.

³⁵⁰ *Id.*

[T]he MPCA understands that dischargers want clarity about how the standard will affect them, and we are sensitive to comments that the MPCA should strive to fully understand and articulate the implementation details of a rule prior to adopting the rule. In the case of water quality standards, the impact on permitted facilities comes through development of an effluent limit specific to a facility that ensures the permitted facility will not cause or contribute to a violation of the water quality standard. Effluent limit setting requires evaluating multiple factors as described beginning on page 96 of the SONAR.

There are approximately 1000 facilities in Minnesota that hold water discharge permits. Site-specific data is required to evaluate the need for an effluent limit at each facility, and these issues are addressed in an individualized permitting process. This data is not immediately available for all facilities and it takes time to gather this data.

This time and data need is inherent to the difference between water quality standards and effluent limits, and is not unique to the proposed revisions to the wild rice sulfate standard. As explained in Part 6G, pp. 96-99 of the SONAR, evaluating the need for and (as needed) determining a water quality based effluent limit requires data specific to the discharge being evaluated and the receiving water(s) being discharged to. Data needs unique to the proposed rule revisions are the sediment iron and carbon (or porewater sulfide) data.

Collecting all the data necessary to calculate all effluent limits statewide would take at least ten to fifteen years, even if the sediment data were not needed. Necessary steps such as gathering five years of effluent data to evaluate and set effluent limits combined with the 10-year surface water monitoring schedule to gather surface water data cumulatively add up to the necessary data not being available for some permitted discharges until at least ten to fifteen years after rule promulgation. The MPCA does plan to prioritize data collection based on factors such as those mentioned in the EPA comments, Appendix 2 – the likelihood of sulfate impacts (because of type and location of dischargers) and permitting schedules.³⁵¹

243. The rule, as proposed, gives regulated parties no notice of the numeric sulfate standard they will be expected to comply with, because it repeals the existing 10mg/L standard and replaces it with an equation based on variables that lack values. WWTPs will not know, until there is a final decision regarding the new water quality standards applicable to their discharge facilities, whether and to what extent they will have to treat their wastewater discharge for sulfate.

244. During the public hearings, MPCA staff distinguished between the process of setting standards and the permitting process. In her introductory remarks, Shannon Lotthammer, Division Director for the MPCA's Environmental Analysis and Outcomes

³⁵¹ MPCA Rebuttal Memo at 40.

Division, stated, “So one thing I want to point out is that the permitting process is not the same thing as establishing a water quality standard.”³⁵² Ms. Lotthammer made similar comments during her introductory remarks at each public hearing.³⁵³

245. To the extent that the Agency claims that the delay in setting standards does not disadvantage the WWTPs because the permitting process can also take years, that claim is undermined by the Agency’s own statements that setting water quality standards and permitting are two completely separate processes. The additional step of establishing a water quality standard before effluent limits can be established will prevent the WWTPs from planning, with any certainty, how to approach what will, at that point, be unknown compliance obligations.

246. The Administrative Law Judge finds that Part 7040.0224, subp. 5, B (1) violates Minn. R. 1400.2100.B. The equation-based sulfate standard is not rationally related to the Agency’s objective. The Agency states that its objective in this proceeding is “[t]o amend the state water quality standards and the rules implementing those standards to protect wild rice from the impact of sulfate, so that wild rice can continue to be used as a food source by humans and wildlife.”³⁵⁴ The equation-based sulfate standard does not update the standards because, while the rule repeals the existing sulfate standard of 10 mg/L,³⁵⁵ it fails to provide the values necessary to insert into the proposed equation to calculate individualized standards for each wild rice water body. Therefore, if the rule is enacted as proposed, there will be no standards when the rule becomes effective. Regulated parties will not know what standards will apply to them, or even whether any sulfate standard applies to them. Therefore, the rule as proposed will not protect wild rice from the impact of sulfate, and is not rationally related to the Agency’s objective.

247. The Administrative Law Judge finds that Part 7040.0224, subp. 5, B (1) violates Minn. R. 1400.2100.E because it is unconstitutionally void for vagueness. “A rule, like a statute, is void for vagueness, if it fails to give a person of ordinary intelligence a reasonable opportunity to know what is prohibited or fails to provide sufficient standards for enforcement.”³⁵⁶

248. The Administrative Law Judge finds that Part 7040.0224, subp. 5, B (1) violates 1400.2100.G. By its own terms, the equation-based sulfate standard cannot have the force and effect of law. The equation lacks values to insert in the place of the iron and organic carbon variables, and thus cannot be calculated. Therefore, the proposed equation-based sulfate standard will not have the force and effect of law within five working days after notice of its adoption and violates the requirements of Minn. Stat. § 14.38.

³⁵² Comments of Shannon Lotthammer, Tr.at 49 (Oct. 23, 2017).

³⁵³ Comments of Shannon Lotthammer, Tr.at 44-45 (Oct. 24, 2017); Tr. at 44 (Oct. 25, 2017); Tr. at 58 (Oct. 26, 2017); Tr. at 57 (Oct. 30, 2017); Tr. at 47-48 (Nov. 2, 2017).

³⁵⁴ Ex. D at 1.

³⁵⁵ Ex. C. at lines 7.8-7.10 (proposed Minn. R. 7050.0224, subp. 2).

³⁵⁶ *In re N.P.*, 361 N.W. 2d 386, 394 (Minn. 1985), *citing Grayned v. City of Rockford*, 408 U.S. 104, 108-09, 92 S. Ct. 2294, 2298-99 (1972).

249. The Agency could cure the defects identified in this section only by conducting the sampling process necessary to provide the values for the equation proposed in the rule for each water identified in the rule, before proposing the rule. However, because the Agency cannot repeal the 10 mg/L sulfate standard for the reasons explained in section V. A., above, the Agency cannot implement the equation-based sulfate standard.

2. Science-based Objections to the Equation

250. The basis for many of the objections were disagreements with the scientific underpinnings of the equation. The science-based objections fall primarily into the following categories:

- a. Disagreement with the MPCA's conclusion that sulfate harms wild rice.³⁵⁷
- b. Disagreement with the MPCA's conclusion that the proposed sulfide standard will be protective of wild rice.³⁵⁸
- c. Concerns that permitting higher sulfate levels will result in increased methyl mercury in fish.³⁵⁹
- d. Criticisms of MPCA's research based on its decision to exclude from consideration stressors on wild rice growth other than sulfate or sulfide.³⁶⁰
- e. Disagreement with the MPCA's conclusion that a level as low as 120 micrograms per liter of sulfide is the maximum level that is protective of wild rice.³⁶¹
- f. Criticisms of the MPCA's research on porewater sulfide.³⁶²
- g. Criticisms of the MPCA's use of field data.³⁶³
- h. Criticisms of the MPCA's choice of data sets.³⁶⁴

³⁵⁷ eComment from Tom Scott (Nov. 22, 2017); Kurt Anderson, Tr. at 116 (Oct. 23, 2017); Sen. David Tomassoni Tr. at 53-55 (Oct. 24, 2017); Larry Sutherland, Tr. at 73 (Oct. 24, 2017).

³⁵⁸ eComment from John Coleman on behalf of Great Lakes Indian Fish and Wildlife Commission at 3-7 (Nov. 22, 2017); eComment from Nancy Schuldt on behalf of Fond du Lac Band of Chippewa at 26-88 (Nov. 22, 2017).

³⁵⁹ Jennifer Lang, Tr. at 61 (Oct. 23, 2017); Ex. 1000, Letter from Lea Foushee on behalf of North American Water Office at 1; eComment from Nancy Schuldt on behalf of Fond du Lac Band of Chippewa at 33 (Nov. 22, 2017); Test. of Dave Zentner on behalf of Izaak Walton League, Tr. at 116-117 (Oct. 26, 2017); E- comment from Kristin Blann on behalf of The Nature Conservancy (Nov. 22, 2017).

³⁶⁰ Test. of O'Neill Tedrow, Tr. at 89-95 (Oct. 24, 2017) and Ex. 1008; Test. of Chrissy Bartovich, Tr. at 80 (Oct. 24, 2017).

³⁶¹ Test. of Kurt Anderson, Tr. at 113-116 (Oct. 23, 2017); Test. of Mike Bock, Tr. at 76-80 (Oct. 23, 2017); Test. of Mike Hansel, Tr. at 82 (Oct. 23, 2017); Test. of Rob Beranek, Tr. at 90 (Oct. 23, 2017); Tom Rukavina, Tr. at 134-148 (Oct. 24, 2017); Sen. Justin Eichorn, Tr. at 59-60 (Oct. 24, 2017).

³⁶² Test. of Mike Hansel, Tr. at 83 (Oct. 23, 2017).

³⁶³ Test. of Mike Bock, Tr. at 79 (Oct. 23, 2017); eComment from John Coleman on behalf of Great Lakes Indian Fish and Wildlife Commission at 3-7 (Nov. 22, 2017).

³⁶⁴ Test. of Rob Beranek, Tr. at 90 (Oct. 23, 2017); eComment from John Coleman on behalf of Great Lakes Indian Fish and Wildlife Commission at 4-5 (Nov. 22, 2017).

- i. Concerns that the equation assumes steady state in a water body.³⁶⁵
- j. Questions about upwelling of ground water.³⁶⁶
- k. Questions about the long-term effectiveness of the calculated sulfide levels.³⁶⁷
- l. Concerns about error rates in the equation.³⁶⁸
- m. Disagreement about the use of EC₁₀ concentration standard.³⁶⁹
- n. Effect of sulfate on different parts of the wild rice plant.³⁷⁰
- o. Challenges to the MPCA's analysis of its research and data.³⁷¹
- p. Concerns about response to peer review criticisms.³⁷²
- q. Issues with the structural equation model (SEM).

251. The Administrative Law Judge finds that the MPCA presented sufficient evidence to demonstrate that there is an adequate scientific basis to conclude that the proposed equation-based sulfate standard is supported by peer-reviewed science and is needed and reasonable.

252. With one notable exception, the MPCA responded to each of the arguments raised by the commenters with arguments that were supported by peer-reviewed research.³⁷³

253. The exception, for which the MPCA did not offer a convincing response, was raised by several parties, most notably Dr. John Pastor, one of the scientists on whose foundational research the MPCA relied for its conclusions that sulfide, rather than sulfate, is the direct cause of damage to naturally-occurring wild rice.³⁷⁴ Dr. Pastor's continuing mecosystem research has indicated that, while increased iron may counter the toxicity of sulfide to wild rice seedlings in the springtime, iron sulfide plaques form and

³⁶⁵ John Pastor, PhD., Technical Review Comments on MPCA's Proposed Flexible Standard for Sulfate in Wild Rice Beds (Nov. 2017), submitted as attachment to WaterLegacy eComments (Nov. 22, 2017); eComment from Nancy Schuldt on behalf of Fond du Lac Band of Chippewa (Nov. 22, 2017); eComment from Miya Evans on behalf of Mesabi Nugget (Nov. 22, 2017).

³⁶⁶ Test. of Meaghan Blair, Tr. at 117-119 (Oct. 24, 2017).

³⁶⁷ John Pastor, PhD., Technical Review Comments on MPCA's Proposed Flexible Standard for Sulfate in Wild Rice Beds (Nov. 2017), submitted as attachment to WaterLegacy eComments (Nov. 22, 2017);

³⁶⁸ Test. of Rob Beranek, Tr. at 91 (Oct. 23, 2017); Test. of Sen. David Tomassoni, Tr. at 55 (Oct. 24, 2017); Test. of Jack Crowell, Tr. at 99 (Oct. 24, 2017); Test. of Rep. Jason Metsa, Tr. at 102 (Oct. 24, 2017); Test. of Sen. Justin Eichorn, Tr. at 54, 61 (Oct. 25, 2017).

³⁶⁹ eComment from Nancy Schuldt on behalf of Fond du Lac Band of Chippewa at 28-31 (Nov. 22, 2017); eComment from Rob Beranek at 12-13 (Nov. 22, 2017); eComment from John Coleman on behalf of Great Lakes Indian Fish and Wildlife Commission at 4-5 (Nov. 22, 2017).

³⁷⁰ eComment from Rob Beranek at 6-8 (Nov. 22, 2017); Test. of Kurt Anderson, Tr. at 69-70 (Oct. 23, 2017).

³⁷¹ Test. of Mike Bock, Tr. at 78-79 (Oct. 23, 2017); Test. of Kurt Anderson, Tr. at 114 (Oct. 23, 2017).

³⁷² Test. of Kelsey Johnson, Tr. at 69 (Oct. 24, 2017).

³⁷³ See MPCA Response Memorandum (Nov. 22, 2017) and Rebuttal Memorandum (Dec. 1, 2017).

³⁷⁴ Ex. D at Ex. S-19.

precipitate on the plants' roots during the flowering and seed production phases of the wild rice life cycle. These plaques result in fewer and smaller seeds, with reduced nitrogen content, leading to extinction of the wild rice plant within 4 or 5 years at about 300 mg/L of sulfate, and greatly reducing wild rice plant population viability at lower concentrations of sulfate. Dr. Pastor hypothesizes that this occurs because the increased plaque appears to block uptake by the plant of nitrogen during the critical flowering and seed production portion of its life cycle.³⁷⁵

254. The MPCA's response to Dr. Pastor's reports about the plaque formation is, first, that "the only information the MPCA has on this issue is a four-page non-peer reviewed progress report" The MPCA also states that Dr. Pastor only presents evidence of nutrient uptake inhibition at 300 mg/L, asserting that this is "much higher than would be allowed using the MPCA's proposed equation."³⁷⁶

255. The Administrative Law Judge notes that the MPCA failed to mention the discussion of plaque formation in the peer-reviewed article which Dr. Pastor co-authored with MPCA staff, among others. The MPCA relies on this article, among others, to support the theory that increased iron in the porewater is protective against sulfide, permitting increased sulfate in the surface water.³⁷⁷ This theory underlies, and is essential to, its equation-based sulfate standard. Furthermore, as discussed above, Dr. Pastor considered the effect of lower amounts of sulfate, as reported in his June 2017 article, concluding that, even at lower levels, sulfate greatly reduced plant viability when combined with increased iron.³⁷⁸

256. Nonetheless, Dr. Pastor's continued research regarding the harmful effects of increased sulfate with increased iron are not yet the subject of peer-reviewed publication. Therefore, the Administrative Law Judge finds that the MPCA demonstrated by an affirmative presentation of facts that it could rationally choose to proceed with the equation-based sulfate standard from a scientific standpoint.

257. The Administrative Law Judge finds that the MPCA's demonstration that the science underlying the equation-based standard is reasonable in that it describes a manner of calculating a sulfate level resulting in a level of sulfide in porewater protective of wild rice.

258. Nonetheless, because the MPCA failed to make an affirmative presentation of facts that implementation of the equation-based standard, or the alternate standard, would provide "for the attainment and maintenance of the water quality standards of downstream waters," the new proposed sulfate standards, even if based on science that a rational decision-maker could conclude is protective of wild rice, must be disapproved.

³⁷⁵ MPCA Response, Att. 5, N-34 at 3 (Pastor, Progress Report on Experiments on Effects of Sulfate and Sulfide on Wild Rice. June 28, 2017); eComment from John Coleman on behalf of Great Lakes Indian Fish and Wildlife Commission at 6 (Nov. 22, 2017).

³⁷⁶ MPCA Rebuttal at 25.

³⁷⁷ Ex. D at Ex. S-19.

³⁷⁸ MPCA Response, Att. 5, N-34 at 3 (Pastor, Progress Report on Experiments on Effects of Sulfate and Sulfide on Wild Rice. June 28, 2017).

C. List at Minn. R. 7050.0471 of Proposed 4D (Naturally Occurring) Wild Rice Waters

259. **Part 7050.0471, subparts 3-9**, proposes to list the waters that will be protected as Class 4D wild rice waters. There are approximately 1,300 Minnesota water bodies in the list as proposed by the MPCA.³⁷⁹

260. In the SONAR, the MPCA explains that the current rules “apply the wild rice beneficial use to ‘water used for production of wild rice,’” without identifying the waters to which the use applies.³⁸⁰ The MPCA states that the case-by-case process of evaluating potential wild rice waters has posed a significant challenge to the implementation of the existing standard.³⁸¹

261. The proposed rule is a response to a legislative mandate first passed in 2011:³⁸²

(a) Upon completion of the research referenced in paragraph (d), the commissioner of the Pollution Control Agency shall initiate a process to amend Minnesota Rules, chapter 7050. The amended rule shall:

(1) address water quality standards for waters containing natural beds of wild rice, as well as for irrigation waters used for the production of wild rice;

(2) designate each body of water, or specific portion thereof, to which wild rice water quality standards apply; and

(3) designate the specific times of year during which the standard applies.

Nothing in this paragraph shall prevent the Pollution Control Agency from applying the narrative standard for all class 2 waters established in Minnesota Rules, part 7050.0150, subpart 3.

(b) “Waters containing natural beds of wild rice” means waters where wild rice occurs naturally. Before designating waters containing natural beds of wild rice as waters subject to a standard, the commissioner of the Pollution Control Agency shall establish criteria for the waters after consultation with the Department of Natural Resources, Minnesota Indian tribes, and other interested parties and after public notice and comment.

³⁷⁹ Ex. C at 11.16-11.17 and 12.7-66.8 (proposed Minn. R. 7050.0471, subps. 1 and 3-9). The original proposed list is slightly longer than the list as finally proposed by the MPCA, because the MPCA initially included waters within the boundaries of the Grand Portage and Fond du Lac reservations. The two tribes objected to inclusion of the waters within their reservations’ boundaries, and the MPCA proposed to remove those waters from the proposed list. MPCA Response at 13.

³⁸⁰ Ex. D at 38.

³⁸¹ *Id.*

³⁸² 2011 Minn. Laws, 1st Sp. Sess. ch. 2, art. 4, § 32(a)-(d).

The criteria shall include, but not be limited to, history of wild rice harvests, minimum acreage, and wild rice density.

(c) Within 30 days of the effective date of this section, the commissioner of the Pollution Control Agency must create an advisory group to provide input to the commissioner on a protocol for scientific research to assess the impacts of sulfates and other substances on the growth of wild rice, review research results, and provide other advice on the development of future rule amendments to protect wild rice. The group must include representatives of tribal governments, municipal wastewater treatment facilities, industrial dischargers, wild rice harvesters, wild rice research experts, and citizen organizations.

(d) After receiving the advice of the advisory group under paragraph (c), consultation with the commissioner of natural resources, and review of all reasonably available and applicable scientific research on water quality and other environmental impacts on the growth of wild rice, the commissioner of the Pollution Control Agency shall adopt and implement a wild rice research plan using the money appropriated to contract with appropriate scientific experts. The commissioner shall periodically review the results of the research with the commissioner of natural resources and the advisory group.

262. The proposed rule applies the sulfate standard only to waters specifically identified as Class 4D wild rice waters, which are listed in proposed Minn. R. 7050.0471.³⁸³ Waters which are not listed in the rule are not subject to the sulfate standard.³⁸⁴

263. In determining which waters to include in the proposed rule, the MPCA relied on a number of sources, including:³⁸⁵

- a. *Natural Wild Rice in Minnesota*) – A Wild Rice Study Report to the Legislature (2008) (Minnesota DNR) – MDNR Wild Rice Harvester Survey Report (2007);
- b. Minnesota Wild Rice Management Workgroup List of 350 Important Wild Rice Waters (2010);
- c. 1854 Treaty Authority List of wild rice waters (through March 2016 plus three additional waters since March 2016);
- d. MDNR Aquatic Plant Management Database;
- e. MPCA Biomonitoring Field Sites;
- f. University of Minnesota/MPCA Wild Rice Study Field Survey Sites;

³⁸³ Ex. C at li. 12.7-66.8 (proposed Minn. R. 7050.0471, subps. 3-9); Ex. D at 38.

³⁸⁴ Test. of S. Lotthammer, Nov. 2, 2017 Tr. at 92.

³⁸⁵ Ex. D at 42.

- g. Minnesota Biological Survey Database;
- h. MPCA Call for Data;
- i. Permittee Monitoring Reports;
- j. WR Waters (7050.0470);
- k. Waters identified by MDNR in 2015 as wild rice waters; and
- l. Waters Identified through MPCA Review of Various Water Surveys.

264. The MPCA found that it could not determine that certain waters were Class 4D wild rice waters based solely on the information it received from these sources. In some cases, the MPCA could not identify the location of the water from the information provided. In other cases, the MPCA could not correlate the location of a river or stream with a specific WID.³⁸⁶

265. The MPCA acknowledges that the MDNR's 2008 report "is widely considered the most comprehensive source of information regarding where rice may be found in Minnesota, and [the DNR report] was extensively reviewed."³⁸⁷ The MDNR report represents the work of experts in the field from state, tribal, and federal governments, along with academia and the private sector.³⁸⁸ However, the MPCA found the MDNR list insufficient on its face because it consolidated certain information on the location of natural wild rice stands, making it difficult for the MPCA to define the density or acreage of some rice stands. In addition, according to the MPCA, the MDNR report contains limited information about streams with wild rice.³⁸⁹

266. As part of this rulemaking, at proposed Minn. R. 7050.0471, subp. 2, the MPCA is proposing "[a]cceptable types of evidence"³⁹⁰ that can be used in future rulemakings to add wild rice water bodies. The evidence must

support a demonstration that the wild rice beneficial use exists or has existed on or after November 28, 1975, in the water body, such as by showing a history of human harvest or use of the grain as food for wildlife or by showing that a cumulative total of at least two acres of wild rice are present.³⁹¹

267. The evidence the MPCA lists as acceptable evidence in its proposed Minn. R. 7050.0471, subp. 2, includes:

³⁸⁶ Ex. D at 45.

³⁸⁷ *Id.*

³⁸⁸ *Id.*

³⁸⁹ Ex. D at 46.

³⁹⁰ Ex. C at line 11.24 (proposed Minn. R. 7050.0471, subp. 2).

³⁹¹ Ex. C at lines 11.21-11.24 (proposed Minn. R. 7050.0471, subp. 2) and MPCA Rebuttal at 8. The reference to the Rebuttal reflects some fairly minor proposed changes to the language in subpart 2 which the MPCA set forth in its December 1, 2017 Rebuttal Memorandum.

- A. written or oral histories that meet the criteria of validity, reliability, and consistency;
- B. written records, such as harvest records;
- C. photographs, aerial surveys, or field surveys; or
- D. other quantitative or qualitative information that provides a reasonable basis to conclude that the wild rice beneficial use exists.³⁹²

268. The MPCA found the MDNR report sufficiently reliable to presume that water bodies included in the report “with wild rice acreage estimates of two acres or more meet the beneficial use.”³⁹³ For waters in the MDNR report with fewer than two acre estimates, the MPCA looked to other sources to identify “high quality, harvestable wild rice waters.”³⁹⁴

269. Several commenters maintained that, in rejecting waters listed in MNDR’s 2008 report and in the 1854 Treaty Authority’s list, the MPCA is removing a designated use from waters that already had wild rice as an “existing use” under federal law.³⁹⁵ Under federal law, states are delegated authority to establish “designated uses” of waters and to set water quality standards to protect the designated uses.³⁹⁶ According to these commenters, this action by the MPCA violates the CWA’s prohibition against removing a designated use if the designated use is an “existing use[], as defined in [40 C.F.R.] § 131.3, unless a use requiring more stringent criteria is added”³⁹⁷

270. A number of commenters object to the MPCA’s proposed list of Class 4D wild rice waters.³⁹⁸ WaterLegacy and others assert that the MPCA’s use of the term “beneficial use” with regard to the classification of wild rice waters is an imprecise and confusing use of a term that is not defined in either existing or proposed rules.³⁹⁹

271. WaterLegacy argues that the MPCA’s proposed list of Class 4D waters is “arbitrary and exclusive” and will “de-list wild rice waters identified by Minnesota state agencies, including waters downstream of existing and potential mining discharge.”⁴⁰⁰

272. WaterLegacy points out that the existing rules, at Minn. R. 7050.0220, subs. 3a, 4a, 5a, and 6a, apply the current 10 mg/L sulfate standard where wild rice is

³⁹² Ex. C at lines 12.1-12.6 (proposed Minn. R. 7050.0471, subp. 2).

³⁹³ Ex. D at 46.

³⁹⁴ Ex. D at 46.

³⁹⁵ WaterLegacy eComment at 30. Hearing Ex. 1020, Written Comments of Dennis Morrison on behalf of Grand Portage Band of Chippewa (Grand Portage Comments) at 8 (Oct. 24, 2017). See eComment from Nancy Schuldt on behalf of Fond du Lac Band at 21-23 (Nov. 22, 2017).

³⁹⁶ WaterLegacy eComment at 31. 40 C.F.R. § 131.3.

³⁹⁷ 40 C.F.R. § 131.11(h)(1).

³⁹⁸ eComment of Nancy Schuldt on behalf of Fond du Lac Band at 8-25 (Nov. 22, 2017), WaterLegacy eComment at 30-40; Hearing Ex. 1020, Grand Portage Comments at 4-8 (Oct. 24, 2017). eComment of Minnesota Center for Environmental Advocacy (MCEA eComment) at 2-5 (Nov. 22, 2017).

³⁹⁹ WaterLegacy eComment at 30. Fond du Lac eComment at 20-21.

⁴⁰⁰ WaterLegacy eComment at 30.

“present.” Minn. R. 7050.0224, subp. 1, protects wild rice as a Class 4 water, “for wildlife designated public uses and benefits,” recognizing it as a “food source for wildlife and humans.” In addition, WaterLegacy cites Minn. R. 7050.0224, subp. 2, which limits sulfate to 10 mg/L in “water used for production of wild rice”⁴⁰¹

273. WaterLegacy maintains that, while rescinding existing Minnesota rules that protect waters used for the production of wild rice and where wild rice is present, the proposed rules create a list of protected waters that excludes “many known and previously designated wild rice waters.”⁴⁰²

274. WaterLegacy claims that the MPCA proposes to delist designated wild rice waters previously identified in consultation with the MDNR and Minnesota tribes. WaterLegacy contends that this delisting violates the CWA’s prohibition on removing existing uses that have been attained at any time since November 28, 1975. In addition, according to WaterLegacy, the MPCA’s proposed list fails to protect wild rice waters generally, and particularly fails to protect wild rice waters downstream of existing and proposed WWTPs.⁴⁰³

275. Other commenters disagree with the MPCA’s proposed list of Class 4D waters for distinctly different reasons. Cleveland Cliffs focuses on the 2011 legislative requirement that the MPCA must consult “with the Department of Natural Resources, the Minnesota Indian tribes, and other interested parties and after public notice and comment”⁴⁰⁴ to establish criteria for wild rice waters before the Agency designates such waters.⁴⁰⁵ Cleveland Cliffs argues that this legislative language required the MPCA to engage in rulemaking to establish criteria for designating wild rice waters before it could designate such waters.⁴⁰⁶

276. In addition, Cleveland Cliffs contends that MPCA violated the language in the 2011 law requiring that “[t]he criteria shall include, but not be limited to, history of wild rice harvests, minimum acreage, and wild rice density” when it included waters in the Class 4D wild rice waters list, without regard to their failure to meet the MPCA’s stated minimum acreage requirement or a known density of wild rice.⁴⁰⁷

277. U.S. Steel Corporation asserts the MPCA’s listing of waters violates the 2011 legislation because the list does not contain information about wild rice density.⁴⁰⁸

⁴⁰¹ WaterLegacy eComment at 31.

⁴⁰² WaterLegacy eComment at 31. eComment of Nancy Schuldt on behalf of Fond du Lac Band at 8-25 (Nov. 22, 2017), Hearing Ex. 1020, Grand Portage Comments at 4-8 (Oct. 24, 2017).

⁴⁰³ WaterLegacy eComment at 31.

⁴⁰⁴ 2011 Minn. Laws, First Sp. Sess., Ch. 2, Art. 4(b).

⁴⁰⁵ eComment from Rob Beranek on behalf of Cleveland Cliffs (Cleveland Cliffs eComment) at 16 (Nov. 22, 2017).

⁴⁰⁶ Cleveland Cliffs eComment at 16.

⁴⁰⁷ Cleveland Cliffs eComment at 17.

⁴⁰⁸ Letter from Lawrence Sutherland on behalf of U.S. Steel (U.S. Steel letter) at 37-38 (Nov. 22, 2017).

278. The MPCA maintains that, for this rulemaking, it used a “weight-of-evidence approach as it reviewed the corroborating evidence from sources to determine if the wild rice beneficial use exists or has existed in a water.” Further, the MPCA states:⁴⁰⁹

Many of the supporting documents used in the MPCA’s review do not contain complete information about the density or acreage of wild rice. Therefore, MPCA scientists used their best professional judgement to determine if the available information provided reasonable evidence that the water demonstrated the wild rice beneficial use (or had done so since November 28, 1975).

For example, where a corroborating source qualitatively identified a water as having “lush” stands of wild rice, the MPCA considered that it met the beneficial use as a wild rice water. Because no single source provided comprehensive or consistent data about the presence of wild rice, the MPCA was not able to apply a strict criterion for what information did or did not reasonably characterize a wild rice water. The MPCA reasonably made the best use of the information from all sources as a basis for professional judgement.

279. In considering possible wild rice waters for inclusion in the list at 7050.0442, subp. 2, the MPCA did not explicitly apply the evidentiary expectations it proposes in Minn. R. 7050.0471, subp. 2. Nor did the MPCA explain why it rejected each proposed specific water that the MPCA excluded from the list in the proposed rule.

280. The MPCA acknowledges that it may not have included all of the waters where the wild rice use has existed since November 28, 1975 in the list proposed at Minn. R. 7050.0471.⁴¹⁰

281. In the SONAR, the MPCA addresses the questions of whether it has included all wild rice waters with an existing use, stating that the Agency

acknowledges that the wild rice waters in this rulemaking may not include every water in Minnesota where the wild rice beneficial use has existed since November 28, 1975. Although the MPCA has made reasonable use of the information available to develop and justify the proposed list of Class 4D wild rice waters, there are additional waters that may be wild rice waters but for which there is not yet sufficient information to determine that the beneficial use is demonstrated.⁴¹¹

282. In response to the commenters who believe that the list of wild rice waters is under-inclusive, the MPCA responds that “it is likely that not all wild rice waters have

⁴⁰⁹ Ex. D at 47.

⁴¹⁰ Ex. D at 58.

⁴¹¹ *Id.*

been identified and is proposing a specific process for future identification of wild rice waters” at proposed Minn. R. 7050.0471, subp. 2.⁴¹²

283. In its December 1, 2017 Rebuttal memorandum, the MPCA states that it “does not agree that the presence (or evidence of past presence) of any amount of wild rice is indicative that the Class 4D wild rice beneficial use is an existing use in that water body.”⁴¹³ In the same document, the MPCA states, with no affirmative presentation of facts to support the statement, that it “has identified those waters where wild rice is an existing use as wild rice waters. Some of those waters may not have wild rice today, but under the CWA must be protected if the use has existed since November 28, 1975.”⁴¹⁴

284. The 2011 legislature required the MPCA to engage in rulemaking only after completing significant research on “water quality and other environmental impacts on the growth of wild rice”⁴¹⁵ The amended rule was required to:

- (1) address water quality standards for waters containing natural beds of wild rice, as well as for irrigation waters used for the production of wild rice;
- (2) designate each body of water, or specific portion thereof, to which wild rice water quality standards apply; and
- (3) designate the specific times of year during which the standard applies.⁴¹⁶

285. The MPCA was not authorized to engage in separate preliminary rulemaking to establish criteria for designating wild rice water bodies.⁴¹⁷

286. The Administrative Law Judge concludes that the plain language in 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4, § 32(b), requires the MPCA to consider the criteria listed in the 2011 Session Law, but does not require that any one of the criteria be determinative. Therefore, the Administrative Law Judge concludes that there is no minimum wild rice acreage or density required for the MPCA to determine that a water body is included in the listing of wild rice water bodies.

287. The Administrative Law Judge concludes that the MPCA’s proposed list of wild rice waters at Minn. R. 7050.0471, subps. 3 through 9 is defective because it fails to include all waters previously identified by the MDNR and federally recognized Indian tribes as waters where wild rice was an existing use since November 28, 1975. The MPCA’s approach, in using a “weight-of-evidence” standard to identify waters such as those with “lush stands of wild rice” that would meet its criteria for “the beneficial use as a wild rice water” violates federal law, which prohibits removing an existing use for wildlife

⁴¹² MPCA Response Memo at 13.

⁴¹³ MPCA Rebuttal Memo at 12.

⁴¹⁴ MPCA Rebuttal Memo at 13.

⁴¹⁵ 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4(d).

⁴¹⁶ 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4(a).

⁴¹⁷ 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4.

unless more stringent criteria are applied.⁴¹⁸ Because Minn. R. 7050.0471 violates federal law, it fails to meet the requirements of Minn. R. 1400.2100.D and is defective.

288. The MPCA could cure the defect at Minn. R. 7050.0471 by amending the listed waters to include all waters previously identified by the MDNR and federally recognized Indian tribes as waters where wild rice was an existing use since November 28, 1975. The Administrative Law Judge concludes that adding the wild rice waters as described in this paragraph would not constitute modification that makes the rule substantially different than the rule as originally proposed based on the standards set forth at Minn. Stat. § 14.05, subd. 2.

D. Other Rule Parts Not Approved

287. In addition to the disapproved proposed rules and proposed changes to the proposed rules discussed above, there are several other rule parts which the Administrative Law Judge finds do not meet the legal requirements for rulemaking. Because of the significant underlying problems with these proposed rules overall, the following rules, and the standards they violate, are listed without additional discussion for the purpose of putting the Agency on notice should it reconsider this rulemaking in the future:

- a. Minn. R. 7050.0224, 5, C. Site-specific sulfate standard. The proposed rule is disapproved based on a violation of Minn. R. 1400.2100.D. No process is provided for the commissioner to determine that “the beneficial use is not harmed.” The criteria included in the rule, “reliable and representative data characterizing the health and viability of the wild rice . . . ,” are vague and grant the commissioner discretion in excess of statutory authority to determine whether to substitute the existing standard.
- b. Minn. R. 7050.0224, subp. 6. This proposed rule concerns the existing narrative standard for Class 4D [WR] waters currently at Minn. R. 7050.0224, subp. 1. The narrative standard applied to the only other wild rice waters previously identified in rule. The proposed rule moves the narrative standard to Minn. R. 7050.0224, subp. 6, and explicitly restricts application of the narrative standard to the wild rice waters originally identified in the rule, at Minn. R. 7050.0470, excluding the wild rice waters listed at 7050.0471 from the scope of its protections.⁴¹⁹ The Administrative Law Judge disapproves Minn. R. 7050.0224, subp. 6, to the extent that it does not apply to all wild rice waters. The MPCA provided no basis to distinguish between protections needed for the waters listed at Minn. R. 7050.0470 and those listed at Minn. R. 7050.0471. Therefore, to apply the narrative standard only to those listed at 7050.0470 violates Minn.

⁴¹⁸ 40 C.F.R. § 131.11(h)(1).

⁴¹⁹ Test. of Nancy Schuldt, Oct. 26, 2017 Tr. at 95-96.

R. 1400.2100.B because the record does not demonstrate the reasonableness of the rule.

E. Technical Errors

288. The language included in the following proposed rules appears to amend version of subparts which are no longer in effect. These are technical errors rather than legal defects. The Agency may cure the errors by amending the proposed language to propose changes to the current versions of the rule:

- a. Minn. R. 7050.0220, subp. 5a
- b. Minn. R. 7050.0470, subps. 1 through 9

F. Changes to the Proposed Rule

289. Following the public hearings, in its Response and Rebuttal Comments, the MPCA makes a number of proposed changes to the proposed rule. Because the Agency suggested changes to the proposed rule language after the date it was originally published in the *State Register*, it is necessary for the Administrative Law Judge to determine if this new language is substantially different from that which was originally proposed.

290. The standards to determine whether any changes to proposed rules create a substantially different rule are found in Minn. Stat. § 14.05, subd. 2(b). The statute specifies that a modification does not make a proposed rule substantially different if:

- (1) the differences are within the scope of the matter announced . . . in the notice of hearing and are in character with the issues raised in that notice;
- (2) the differences are a logical outgrowth of the contents of the . . . notice of hearing, and the comments submitted in response to the notice; and
- (3) the notice of hearing provided fair warning that the outcome of that rulemaking proceeding could be the rule in question.

291. In reaching a determination regarding whether modifications result in a rule that is substantially different, the Administrative Law Judge is to consider whether:

- (1) persons who will be affected by the rule should have understood that the rulemaking proceeding . . . could affect their interests;
- (2) the subject matter of the rule or issues determined by the rule are different from the subject matter or issues contained in the . . . notice of hearing; and

(3) the effects of the rule differ from the effects of the proposed rule contained in the . . . notice of hearing.⁴²⁰

292. To the extent that they are not approved, the MPCA's suggested language changes are described in the following paragraphs.

1. Changes That Are Not Approved

(1) Minn. R. 7050.0224, subp. 5, B (1)

293. The EPA comments that "it is not possible to say with certainty," regarding the equation-based sulfate standard set forth at Minn. R. 7050.0224, subp. 5, B (1), "that the relationships between sediment pore water sulfide and total organic carbon and total extractable iron used to calculate protective water column sulfate concentrations remain valid outside the range of the data used to develop the criterion."⁴²¹

294. Commenter Nathan Johnson similarly observes:

It is possible that a limitation on the model predictions could be imposed . . . which would not allow high sulfate concentrations to be calculated by the model if the statistical strength of the model's predictive abilities towards the edge of the domains is limited. Using the proposed equation to extrapolate to very high surface water sulfate concentrations (higher than those observed commonly in the observational dataset) represents a potential instance of applying the model beyond an appropriate domain of applicability. The same could be said for sediment carbon and iron.⁴²²

295. In response to these concerns, the Agency proposes to amend the equation for the numeric sulfate standard, "by setting constraints on the implementation of the equation that would ensure that the equation is protective."⁴²³ The MPCA proposes to set these constraints so "that input values of carbon cannot be lower than the minimum value in the range of data used to develop the equation, because carbon enhances sulfide production." Similarly, under the MPCA's proposal the "input values of iron cannot be higher than the maximum value in the range of data used to develop the equation because iron removes sulfide from porewater."⁴²⁴ The MPCA provides no specific values for its minimum carbon or maximum iron values.

296. As part of its response to the concerns raised by Mr. Johnson and the EPA about setting constraints consistent with the models, the MPCA proposes "that output

⁴²⁰ See Minn. Stat. § 14.05, subd. 2.

⁴²¹ EPA Comments at 6.

⁴²² Nathan Johnson Comment at 1-2 (eComment Nov. 22, 2017).

⁴²³ MPCA Rebuttal Memo at 3.

⁴²⁴ *Id.*

values of sulfate cannot be higher than the maximum value in the range of data used to develop the equation, 838 mg/L.”⁴²⁵

297. The MPCA asserts that the constraint on sulfate is appropriate “because observed sulfate levels were an input to the development of the equation, and the equation is of unknown validity outside the range used to develop it.”⁴²⁶ The Agency believes that this approach “will help assuage commenter concerns about exceedingly high sulfate levels that may result from the equation.” However, the Agency realizes that imposing these limits may also raise concerns for other commenters.⁴²⁷

298. The Administrative Law Judge finds that, to the extent the equation-based standard remains a viable part of this rule, the sulfate cap is needed and reasonable and would not constitute a modification that makes the rule substantially different than the rule as originally proposed based on the standards set forth at Minn. Stat. § 14.05, subd. 2.

299. The Administrative Law Judge finds that, to the extent the equation-based standard remains a viable part of this rule, unspecified minimum carbon or maximum iron input values for the equation-based standard are not reasonable. They are unconstitutionally vague and violate the standards of Minn. R. 1400.2100.E.

(2) Minn. R. 7050.0224, subs. 5.E and F

300. In Minn. R. 7050.0224, subp. 5, E, the MPCA proposes to incorporate Sampling and Analytical Methods for Wild Rice Methods. As the name indicates, this document sets out methods for collecting and analyzing wild rice water sediment samples.

301. The MPCA explains that a “primary goal of incorporating the sampling methodology into the rule was to provide clarity so that others can conduct sampling and to ensure that the sampling, which is foundational to the developing of a numeric sulfate standard, is completed consistently and accurately.” Because this goal is important to the MPCA, it plans to incorporate any changes to the methods incorporated by reference through rulemaking.⁴²⁸

302. Commenter Norman Miranda notes:

The dilemma I see for utility managers regardless of whatever protective limit is adopted is to convince their respective City Council and rate payers that a very limited number of samples and sample locations yielded adequate and conclusive data to justify a significant capital investment. ... I believe MPCA is on the right track offering a consistent sampling regime of a fixed number of samples at a prescribed location array. ... I believe at least two sampling events conducted in appropriate but separate locations

⁴²⁵ MPCA Rebuttal Memo at 4.

⁴²⁶ *Id.*

⁴²⁷ *Id.*

⁴²⁸ MPCA Rebuttal at 5.

need to be conducted by the MPCA. I realize the MPCA has limited financial resources to conduct extensive sampling and analysis in multiple locations for every discharger. However, to offer some flexibility, I think the Rule should include a provision that municipalities/permitted facilities be given the opportunity to conduct additional sampling/testing beyond two events that would be required under the Rule. The ground rules for this additional sampling could include:

- Regulated party must submit a plan for MPCA approval showing proposed alternative sample locations.
- Sampling must follow MPCA “Sampling and Analytical Methods” and be conducted by approved lab/consultant.
- Sampling/testing to be done before or concurrent with MPCA sampling as not to delay MPCA’s schedule.
- Cost of additional sampling events to be the responsibility of the Regulated Party.

In return I believe there should be language where the MPCA will give the Regulated Party’s data set the same weight if all conditions are followed.⁴²⁹

303. The MPCA agrees that some flexibility may be needed as more sampling occurs, and appreciates that many permittees want to do more sampling, and perhaps sooner, than the MPCA plans to undertake. While the MPCA plans to do most sampling with its own resources, it plans to allow the use of data submitted by other parties (whether regulated parties or others) if the data was collected in accordance with the MPCA’s requirements.⁴³⁰

304. The MPCA is proposing to amend Minn. R. 7050.0224, subp. 5, B (1) (a) - (c) at lines 8.6, 8.11, and 8.13, to require that analysis and sampling happen consistent with the methods that are incorporated by reference, rather than requiring exact adherence to the methods. This will allow some flexibility if, for example, an analytical method is slightly updated. The MPCA is also proposing to add language that the sediment samples are collected in areas where wild rice is growing or may grow within the wild rice water. The proposed rule language would read:⁴³¹

Where:

(a) organic carbon is the amount of organic matter in dry sediment. The concentration is expressed as percentage of carbon, as determined ~~using~~ consistent with the method for organic carbon analysis in Sampling and Analytical Methods for Wild Rice Waters, which is incorporated by reference in item E;

⁴²⁹ eComment of Norman Miranda (Nov. 15, 2017).

⁴³⁰ MPCA Rebuttal at 4-5.

⁴³¹ MPCA Rebuttal at 5.

(b) iron is the amount of extractable iron in dry sediment. The 8.10 concentration is expressed as micrograms of iron per gram of dry sediment, as determined using consistent with the method for extractable iron in Sampling and Analytical Methods for Wild Rice Waters;

(c) sediment samples are collected using consistent with the procedures established in 8.14 Sampling and Analytical Methods for Wild Rice Waters;

305. The MPCA is proposing additional related changes, likely to be codified as rule part 7050.0224, subp. 5, E, which would read as follows:⁴³²

For each wild rice water identified in 7050.0471, the methods for selecting sediment sampling sites and for collecting, processing and analyzing sediment samples must be documented, including all QA/QC. Where methods are used that are consistent with but different from those specified in Sampling and Analytical Methods for Wild Rice Waters, the intended methods and how they will be used to calculate the numeric sulfate standard must be submitted to and approved by the Commissioner prior to sample collection.

306. The MPCA believes these changes will allow parties wishing to undertake sampling of wild rice waters needed to calculate a protective sulfate value the flexibility to do so, while ensuring necessary consistency. The MPCA intends that sampling by non-Agency personnel could occur at any time, even if MPCA sampling has already occurred. In those cases, the MPCA states, “the intended methods should describe how both the MPCA gathered data and any additional data will be used in concert.” The MPCA intends that, in all cases, all sampling be documented.⁴³³

307. The Administrative Law Judge disapproves the MPCA’s proposed language requiring prior approval of data collection methods to plan for allowing non-Agency personnel to engage in sampling and data collection of wild rice waters because the MPCA provides no criteria for approving alternate sampling plans. This delegates discretion to the Agency beyond what is allowed by law, in violation of Minn. R. 1400.2100.D.⁴³⁴

308. The MPCA states in its Rebuttal memorandum, but nowhere in the rule, that the MPCA will make the final determination about the numeric sulfate standard for any given water body.⁴³⁵

309. The MPCA includes no process and no criteria in the proposed rule language for the Agency to determine which of possible competing numeric sulfate

⁴³² MPCA Rebuttal at 5. The incorporation by reference would then be renumbered as Subp. 5, F. MPCA Rebuttal at 5.

⁴³³ MPCA Rebuttal at 5.

⁴³⁴ See *Lee v. Delmont*, 228 Minn. 101, 113, 36 N.W.2d 530, 538 (1949); accord *Anderson v. Commissioner of Highways*, 126 N.W.2d 778, 780 (Minn. 1964).

⁴³⁵ MPCA Rebuttal at 5.

standards will apply in a given wild rice water. While the Administrative Law Judge does not disapprove incorporating by reference into the rule the Sampling and Analytical Methods for Wild Rice Waters, the Agency's larger scheme of permitting multiple players to propose standards with no written, transparent process or criteria for choosing among those standards exceeds the Agency's authority.

310. The Administrative Law Judge disapproves the MPCA's proposed language because, by granting the Agency authority to choose which standard to apply with no criteria in rule, the rule grants the Agency discretion beyond what is allowed by law in violation of Minn. R. 1400.2100.D.⁴³⁶

(3) Minn. R. 7050.0224, subp. 5, B (2)

311. The MPCA received several comments about the Alternate Standard set forth at Minn. R. 7050.0224, subp. 5, B (2). This alternate standard procedure develops a replicable approach to developing an alternate standard for areas where the equation does not fit – where there is high sulfate but low porewater sulfide. A number of commenters objected to the standard for a variety of reasons.⁴³⁷

312. In its Rebuttal, the MPCA proposes to revise Minn. R. 7050.0224, subp. 5, B (2), as follows:⁴³⁸

The commissioner may establish an alternate sulfate standard for a wild rice water when the ~~ambient surface water~~ sulfate concentration is above the calculated sulfate standard and data demonstrates that sulfide concentrations in pore water are 120 micrograms per liter or less. Data must be gathered ~~using consistent with~~ the procedures specified in Sampling and Analytical Methods for Wild Rice Waters, which is incorporated by reference in item E. The alternate sulfate standard ~~established must be either the annual average sulfate concentration in the ambient water or a level of sulfate the commissioner has determined will maintain the sulfide concentrations in pore water at or below 120 micrograms per liter. is determined by calculating the ratio of measured sulfide, in micrograms per liter, to 120 micrograms per liter and applying that ratio to the surface water sulfate as follows~~
$$\frac{120}{\text{porewater sulfate}} * \text{surface water sulfate}.$$

313. The Administrative Law Judge disapproves of Minn. R. 7050.0224, subp. 5, B (2), because, as with the repeal of the 10 mg/L sulfate standard, the MPCA has failed to make an affirmative presentation of facts demonstrating that, in establishing an Alternative Standard which would allow increased levels of sulfate in wild rice waters, it

⁴³⁶ See *Lee v. Delmont*, 228 Minn. 101, 113, 36 N.W.2d 530, 538 (1949); accord *Anderson v. Commissioner of Highways*, 126 N.W.2d 778, 780 (Minn. 1964).

⁴³⁷ Test. of P. Maccabee, Oct. 23, 2017 Tr. at 104; eComment of Kurt Anderson on behalf of Minnesota Power (Minnesota Power eComment) at 18-19 (Nov. 21, 2017); eComment of Chrissy Bartovich and Lawrence Sutherland on behalf of U.S. Steel (U.S. Steel eComment) at 34 (Nov. 22, 2017).

⁴³⁸ MPCA Rebuttal at 7.

is protecting the public health or welfare, enhancing the quality of water, and ensuring the proposed water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters, as required by federal and state law. Therefore, the Administrative Law Judge concludes that the proposed Alternative Standard violates Minn. R. 1400.2100.D, because it conflicts with other applicable law.

(4) Part 7050.0130, subp. 6a

314. **Part 7050.0130, subp. 6a** defines a “water identification number” or “WID” as a unique identifier used by the agency to identify a surface water.⁴³⁹ Mining Minnesota objects to the MPCA’s use of WIDs to describe the identified wild rice waters at proposed Minn. R. 7050.0471.⁴⁴⁰ The basis for Mining Minnesota’s objection is that the WIDs fail to describe the areas where wild rice beds are located with sufficient specificity, resulting in a list that designates waters with no wild rice, or no history of wild rice presence, as wild rice waters.⁴⁴¹ The result of the MPCA’s use of what is essentially an administrative convenience, according to Mining Minnesota, is an overbroad regulation that “will inflict significant hardship on industry, companies, and private citizens across the state in a manner that is contrary to legislative intent.”⁴⁴²

315. The MPCA disagrees with this criticism, stating that “WIDs are an important component of the MPCA’s water programs.”⁴⁴³ The MPCA notes that the EPA agrees with the MPCA’s assessment that rulemaking is required to make changes to a WID number that would entirely remove the WID from a particular water, or from a subpart of the water already identified as a wild rice water.⁴⁴⁴ The MPCA contends that it is logical to apply the standard to the entire WID for lakes, wetlands, and reservoirs, because in these situations, the water generally “moves and mixes throughout the waterbody.”⁴⁴⁵ The MPCA notes that, in those cases where part of a lake or reservoir, such as a bay, is hydrologically isolated, the MPCA has a mechanism for assigning a separate WID to the hydrologically separate part of the waterbody.⁴⁴⁶

316. While the MPCA recognizes “that there may [be] cases where the presence of wild rice within a large or very diverse WID does not justify the application of the standard to the entire WID” the MPCA suggests that, in those cases, it “can split the WID and conduct a use and value determination . . . to remove the wild rice beneficial use from the WID that does not support the beneficial use.”

317. The Administrative Law Judge concludes that the MPCA’s proposal to “split the WID and conduct a use and value determination . . . to remove the wild rice beneficial

⁴³⁹ Ex. C at lines 1.16-1.22.

⁴⁴⁰ Letter from Frank Ongaro on behalf of Mining Minnesota (Mining Minnesota letter) at 3 (Nov. 22, 2017).

⁴⁴¹ Mining Minnesota letter at 3-4.

⁴⁴² Mining Minnesota letter at 7.

⁴⁴³ MPCA Rebuttal at 14.

⁴⁴⁴ *Id.*

⁴⁴⁵ *Id.*

⁴⁴⁶ *Id.*

use from the WID that does not support the beneficial use” at some time in the future would violate the federal prohibition on removing an existing use.⁴⁴⁷ This proposal is not currently in the proposed rule and the Administrative Law Judge does not approve including it.

2. Changes That Are Approved

318. The MPCA proposes changes to a number of proposed rules in its Response and Rebuttal memoranda. Should the MPCA proceed with revisions to the overall rule, the Administrative Law Judge concludes that the MPCA’s proposed changes to the rule parts listed below would be needed and reasonable and would not constitute modifications that make the rule substantially different than the rule as originally proposed based on the standards set forth at Minn. Stat. § 14.05, subd. 2:

- a. Minn. R. 7050.0130, subp. 2b⁴⁴⁸
- b. Minn. R. 7050.0130, subp. 6c⁴⁴⁹
- c. Minn. R. 7050.0220, subps. 1, B (1-4), 3a, 4a, 5a and 6a⁴⁵⁰
- d. Minn. R. 7050.0220, subp. 3a⁴⁵¹
- e. Minn. R. 7050.0224, subp. 5, B⁴⁵²
- f. Minn. R. 7050.0471, subp. 3⁴⁵³
- g. Minn. R. 7050.0471, subps. 6 and 8⁴⁵⁴
- h. Minn. R. 7050.0471, subp. 8⁴⁵⁵
- i. Minn. R. 7053.0406, subp. 1⁴⁵⁶
- j. Minn. R. 7053.0406, subp. 2⁴⁵⁷
- k. Minn. R. 7053.0406, subp. 2, B⁴⁵⁸

⁴⁴⁷ 40 C.F.R. § 131.3 (e).

⁴⁴⁸ MPCA Rebuttal at 2.

⁴⁴⁹ MPCA Rebuttal at 3. The MPCA Rebuttal mistakenly refers to the rule part in question as part 7050.0220, subp. 6c.

⁴⁵⁰ MPCA Rebuttal at 2.

⁴⁵¹ MPCA Rebuttal at 2-3.

⁴⁵² Rebuttal at 7. EPA Comments at 5.

⁴⁵³ MPCA Response to Comments at 13.

⁴⁵⁴ MPCA Response to Comments at 14.

⁴⁵⁵ This WID location tool is intended to be supplementary to the Tableau interactive mapping tool presently available on the MPCA wild rice web page <http://www.pca.state.mn.us/water/protectingwild-rice-waters>. MPCA Response to Comments at 14.

⁴⁵⁶ MPCA Response to Comments at 14-15.

⁴⁵⁷ MPCA Response at 15. Minn. R. 7050.0190 contains provides that a variances from a water quality standard includes a variances for its related WQBEL. Environmental Protection Agency Comments (EPA Comments) at 15 (Nov. 22, 2017).

⁴⁵⁸ MPCA Response at 15.

G. Additional Findings

319. The Administrative Law Judge finds that the Agency has demonstrated by an affirmative presentation of facts the need for and reasonableness of all rule provisions that are not specifically addressed in this Report.

320. Further, the Administrative Law Judge finds that all provisions that are not specifically addressed in this Report are authorized by statute, and that, to the extent they are severable from the defective rules, there are no other defects that would bar the adoption of those rules.

321. Because some of the defects in the rule are defects in foundational portions of the proposed rules, the Administrative Law Judge advises the Agency against resubmitting the rule for approval of changes unless it addresses the defects in the wild rice water sulfate standard and the list of wild rice waters. However, the list of wild rice waters proposed at Minn. R. 7050.0471 is severable from the wild rice water sulfate standard. Therefore, the Administrative Law Judge finds that the Agency could choose to resubmit the proposed list of wild rice waters separately from the wild rice water sulfate standard.

Based upon the Findings of Fact and the contents of the rulemaking record, the Administrative Law Judge makes the following:

CONCLUSIONS OF LAW

1. The Agency gave proper notice of the hearing in this matter, pursuant to Minn. Stat. §14.14, subd. 1(a).

2. The Agency has failed to fulfill the procedural requirements of Minn. Stat. §§ 14.127 and 14.131, paragraphs 1, 5, 7, and 8. All other procedural requirements of rule and law have been satisfied for both the proposed repeal of the 10 mg/L sulfate standard and the adoption of the proposed rules.

3. The following proposed rules are **DISAPPROVED**:

- a. Proposed **Minn. R. 7050.0220, subps. 3a, 4a, 5a, 6a**: deleting reference to 10mg/L sulfate wild rice water standard violates Minn. R. 1400.2100 B and D.
- b. Proposed **Minn. R. 7050.0224, subp. 2**: repealing 10mg/L sulfate wild rice water standard violates Minn. R. 1400.2100.B and D.
- c. Proposed **Minn. R. 7050.0224, subp. 5, A**: to the extent the language incorporates the standard in items B (1) and (2) the language violates Minn. Stat. § 14.38 and Minn. R. 1400.2100.B and G.

- d. Proposed **Minn. R. 7050.0224, subp. 5, A**: to the extent the language incorporates the standard in item C, the language violates Minn. R. 1400.2100.D.
 - e. Proposed **Minn. R. 7050.0224, subp. 5, B (1)**: violates Minn. R. 14.38 and Minn. R. 1400.2100.B, G, and E.
 - f. Proposed **Minn. R. 7050.0224, subp. 5, C**: violates Minn. R. 1400.2100.D.
 - g. Proposed **Minn. R. 7050.0224, subp. 6**: need or reasonableness for rule not established. Failure to distinguish between [WR], which are provided the additional protection of the narrative standard, and other wild rice waters listed at Minn. R. 7050.0471 violates 1400.2100.B.
 - h. Proposed **Minn. R. 7050.0471, subps. 3 through 9**: violates Minn. R. 1400.2100.D and E.
4. The following changes to rules as originally proposed are **DISAPPROVED**:
- a. Proposed changes to **Minn. R. 7050.0224, subp. 5, B (1)**: violates Minn. R. 1400.2100.E.
 - b. Proposed changed to **Minn. R. 7050.0224, subps. 5, E and F**: violate Minn. R. 1400.2100.D.
 - c. Proposed changes to **Minn. R. 7050.0224, subp. 5, B (2)**: violates Minn. R. 1400.2100.D.

5. The Administrative Law Judge has suggested actions to correct some of the defects cited herein and to improve the clarity of the proposed rules should they be resubmitted for approval in the future.

6. Due to the disapproval of the proposed rules and the repeal of the existing rules, this Report has been submitted to the Chief Administrative Law Judge for her approval pursuant to Minn. Stat. § 14.15, subd. 3.

7. Any Findings that might properly be termed Conclusions, and any Conclusions that might properly be termed Findings, are hereby adopted as such.

8. A Finding or Conclusion of need and reasonableness with regard to any particular rule subsection does not preclude and should not discourage the Agency from further modification of the proposed rules based upon this Report and an examination of the public comments, provided that the rule finally adopted is based on facts appearing in this rule hearing record and is not substantially different from the proposed rule.

Based upon the foregoing Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

IT IS HEREBY RECOMMENDED that the proposed rules be **DISAPPROVED**.

Dated: January 9, 2018



LAURASUE SCHLATTER
Administrative Law Judge

Reported:

Marcia L. Menth, Kirby Kennedy & Associates, St. Paul – 10/23
Calvin J. Everson, Danielson Court Reporting, Virginia – 10/24
Lorna D. Jacobson, Jacobson Reporting & Video Services, Bemidji – 10/25
Nathan D. Engen, Cloquet – 10/26
Nathan D. Engen, Brainerd – 10/30
Kelly L. Brede, Kirby Kennedy & Associates, St. Paul – 11/2

Attachments to Dunka Letter

- A. MEQB Letter of Paul Eger to Abner Fisch, MPCA (Dec. 14, 1976)
- B. USEPA, email response to Bruce Johnson re FOIA Request, #05-FOI-01595-10 (Oct. 25, 2010).
- C. MPCA Memo, Jerry Flom to Curt Sparks, "Mine Dump Seeps," Sept. 1, 1988.
- D. MPCA Memo, Mark Schmitt to Carri Lohse, "Birch Lake Fish Tissue Data," July 26, 1985.
- E. MPCA Memo, Virginia Reiner to Ken Haberman, "Bob Bay Monitoring," Jan. 5, 1984.
- F. MPCA Memo, Carri Lohse to Mark Tomasek, "Standards Information Request from Erie Mining Company," Feb. 28, 1985.
- G. Schematic of Dunka Mine waste locations, taken from MDNR Case Study.
- H. MPCA Memo, Carol Sinden to Richard Clark, "7Q10 Determinations for Unnamed Creek to Bob Bay," Feb. 1, 1991.
- I. MDNR Dunka Case Study, Table 5-1.
- J. Public Notice of Intent to Reissue NPDES/SDS Permit 0042579, Public Comment Period June 16, 2000 – July 17, 2000.
- K. MDNR, *Long Term Wetland Treatment of Mine Drainage at LTV Steel Mining Company's Dunka Mine*, December 2000, p. vi, Executive Summary attached to MDNR letter from Paul Eger to Pat Cary, MPCA (Jan. 10, 2001)



REF - LOOKS K.R.M.
Like we may
have to give
them a T.E.
Please advise
Pat

STATE OF MINNESOTA

ENVIRONMENTAL QUALITY COUNCIL

Copper-Nickel Project
138~~100~~ Hennepin Square Building
2021 East Hennepin Avenue
Minneapolis, Minn. 55413

Phone: 612-378-7770

Received and Logged
in by JGM of CEA

December 14, 1976

ck w/ Abner & Criswell DEC 16 1976

Abner Fisch
Pollution Control Agency
1935 West County Road B2
Roseville, Minnesota 55113

Dear Abner:

As you know, the Regional Copper-Nickel Study has been conducting a series of studies at the Erie Mining Company taconite mine four miles east of Babbitt. In this area, the geological formation known as the Duluth Gabbro Complex overlies part of the eastern edge of the Biwabik iron formation. To mine the taconite in the eastern portion of their pit (Dunka Pit) Erie has had to remove and stockpile the overlying gabbro. The Duluth Gabbro formation contains copper and nickel sulfide minerals of potential economic value. The material stockpiled by Erie is presently not considered to be of ore grade--it does represent material that would be classified as lean ore and waste rock. These stockpiles are representative of the type that more than likely would be produced by full-scale open pit copper-nickel mining. Leaching of heavy metals is presently occurring from these stockpiles and the leachate flows into Unnamed Creek and then to Birch Lake.

In November 1974, the Environmental Quality Council requested the preparation of a regional environmental study on possible impacts from potential copper-nickel mining in northeastern Minnesota. This regional study is presently underway. In general, the study has two goals: 1) to characterize the present environment and socio-economic state of the region; and 2) to predict possible impacts resulting from potential copper-nickel development. Neither of these tasks is easy but the prediction of impacts is particularly difficult. Often the only type of information available is that obtained from literature and this information may not describe the actual situation in Minnesota. In an effort to develop better predictive models, field studies have been initiated in the Unnamed Creek watershed and Birch Lake. The data collected from these areas will provide a basis to compare literature values and predict impacts. Several studies were initiated this summer and some are planned for continuation this winter. Information is being collected on the aquatic biology, water chemistry, the leaching process, the transport of heavy metals, the toxic effect of the leachate and heavy metal accumulation in plants, fish and sediments.

Erie Mining Company has been cooperating with the Regional Study. Some of this cooperation has necessitated the delaying of some of their proposed mitigation techniques. In particular, one of the proposed control measures is to pump-down and intercept ground water before it reaches the stockpiles. One of our studies underway is centered around the stockpile area and it is important that data continue to be collected without imposing additional changes (pumping) in the system. Erie has temporarily ceased pumping from this area and is willing to delay further testing of this procedure. If testing is discontinued, Erie will be delayed in devising a final plan for control of the stockpile run-off. Under Erie's present permit, the run-off from the Gabbro is to be controlled by June 1977. I feel that it is important to collect data from this area during the spring run-off period. This would mean that pumping should not be resumed until the end of June 1977. This would require that Erie be granted an additional time period to comply with the permit conditions. I would suggest that time be extended to Erie in order that we may collect valuable spring run-off data. This does not mean that other mitigation techniques required under their permit should not be pursued. Recent information that we are developing implies that their present proposal will only be partially successful in stopping the seepage from the stockpile area. It is our plan to have the situation better defined within the next few months.

The data collected from this study will be useful not only in the prediction of impacts resulting from copper-nickel mining but also in the reversability of those impacts. It is our plan to continue to collect data in this area during and after mitigation procedures have been implemented. This will give us a measure of the degree to which adverse impacts can be controlled and/or reversed. If you have any questions or need more information, please contact me.

Sincerely,



Paul Eger

PE:st

cc: Phil Brick
Steve Chapman
Robert Criswell, PCA
Perry Beaton, PCA
Richard Svanda, PCA
✓ Tim Scherckenback, PCA



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

REPLY TO THE ATTENTION OF:

WN-16J

OCT 25 2010

Mr. Bruce Johnson
6763 253rd Avenue, NE
Stacy, Minnesota 55079

Re: Freedom of Information (FOI)
(Identification No. 05-FOI-01595-10)

Dear Mr. Johnson:

This is the Water Division's response to your FOI request dated September 29, 2010. You requested from the U.S. Environmental Protection Agency (EPA) a copy of the completed NPDES Permit Rating Worksheet for NPDES Permit MN0042579.

We do not have an NPDES Permit Rating Worksheet for the facility Cliffs Erie LLC-Dunka MN0042579. This facility is a minor facility and EPA does not maintain those records. The facility has been a minor since the original issuance of their permit, which was May 27, 1975.

For information on this facility, you may want to contact the State of Minnesota at:

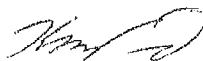
Agency File Manager
520 Lafayette Road North
St. Paul, Minnesota 55155-4194
Telephone: 651-296-6300/800-657-3864

You may appeal this response to the National Freedom of Information Officer, U.S. EPA, FOIA and Privacy Branch, 1200 Pennsylvania Avenue, N.W. (2822T), Washington, DC 20460 (U.S. Postal Service Only), FAX: (202) 566-2147, E-mail: hq.foia@epa.gov. Only items mailed through the United States Postal Service may be delivered to 1200 Pennsylvania Avenue, NW. If you are submitting your appeal via hand delivery, courier service or overnight delivery, you must address your correspondence to 1301 Constitution Avenue, N.W., Room 6416J, Washington, DC 20004. Your appeal must be made in writing, and it must be submitted no later

than 30 calendar days from the date of this letter. The Agency will not consider appeals received after the 30 calendar day limit. The appeal letter should include the 05-FOI-01595-10 as listed above. For quickest possible handling, the appeal letter and its envelope should be marked "Freedom of Information Act Appeal."

If you have any questions regarding this response, please contact Ms. Jackson of my staff at 312-886-3717.

Sincerely,



Kevin Pierard, Chief
NPDES Program Branch

STATE OF MINNESOTA
Office Memorandum

DEPARTMENT : **Pollution Control Agency**

PHONE : 296-9207

DATE : September 1, 1988

TO : Curt Sparks, Marvin Hora
Doug Hall, Bruce Johnson

Division of Water Quality

FROM : Jerry Flom
Pollution Control Specialist
Program Development Section
Division of Water Quality

SUBJECT : **Mine dump seeps**

Attached is a brief summation of the toxicity tests Harold and I conducted on mine dump seeps from AMAX and LTV. When metals data are received from MDH we will write a more complete report.

SUMMARY

Forty-eight hour acute static tests using fathead minnows, Ceriodaphnia, and Daphnia magna were conducted on seven mine dump seeps. Five of the seeps were from LTV mine dumps and two seeps were from AMAX mine dumps. Samples were collected August 25, 1988 by Harold Wiegner and the tests were conducted by Harold Wiegner and Jerry Flom at the Minnesota Pollution Control Agency Biomonitoring Laboratory in St. Paul. Water collected from the Dunka River was used as a diluent and as the control water.

DISCUSSION

Ceriodaphnia were the most sensitive organisms tested. All the seeps except LTV W2D showed 100% mortality at the lowest concentration tested, either 3 or 6 percent. The ranking of the seeps from most toxic to least toxic relies on the toxicity shown to all the test species. This may or may not accurately reflect the metals data when they are received. There may be discrepancies because the Ceriodaphnia were not tested at low enough concentrations to calculate LC50 values.

RESULTS

The results of the toxicity tests are presented below. An LC50 value shows the concentration of seep water that kills 50 percent of the exposed organisms. Less than values show the lowest concentration tested at which there was 100% mortality. Greater than values indicate no significant acute toxicity. There were no mortalities to any of the control organisms in any of the tests.

MINE DUMP SEEPAGE TOXICITY TEST RESULTS

AMAX B1-IB	LC50	AMAX B2-IB	LC50
Fathead	>100%	Fathead	50%
Ceriodaphnia	< 6%	Ceriodaphnia	< 3%
Daphnia magna	70%	Daphnia magna	5%

LTV EM-8	LC50	LTV S-1	LC50
Fathead	>100%	Fathead	70%
Ceriodaphnia	< 6%	Ceriodaphnia	< 3%
Daphnia magna	>100%	Daphnia magna	16%

LTV S-3	LC50	LTV W1D	LC50
Fathead	>100%	Fathead	>100%
Ceriodaphnia	< 3%	Ceriodaphnia	< 6%
Daphnia magna	8%	Daphnia magna	50%

LTV W2D	LC50
Fathead	>100%
Ceriodaphnia	14%
Daphnia magna	>100%

Most-to-Least toxic ranking

- 1 AMAX B2-IB
- 2 LTV S-1
- 3 LTV S-3
- 4 LTV W1D
- 5 AMAX B1-IB
- 6 LTV EM-8
- 7 LTV W2D

DEPARTMENT : **Pollution Control Agency**

PHONE : 296-7756

DATE : July 26, 1985

TO : Carri Lohse

FROM : Mark D.C. Schmitt
Pollution Control Specialist
Division of Water Quality

SUBJECT : **Birch Lake Fish Tissue Data**

STATE OF MINNESOTA
Office Memorandum

I have completed my analysis of the Birch Lake fish tissue data. The results are attached. I have included only those analyses which are of interest in the context of the ongoing problems at the Erie Mining Company's Dunka Mine. Many additional analyses were performed. If you are interested in these, I have the master copy of all analyses performed in my desk.

The following are my conclusions:

- 1) Nickel concentrations in the livers of fish taken from Bob Bay are significantly higher than those in the livers of fish taken from any of the other locations in Birch Lake.
- 2) Zinc concentrations in the flesh of fish taken from Bob Bay are significantly higher than those in the flesh of fish taken from any of the other locations in Birch Lake.
- 3) Copper and nickel concentrations in the flesh of fish taken from Bob Bay are significantly higher than those in the flesh of fish taken from all locations in Birch Lake.
- 4) Nickel concentrations in the livers of northern pike taken from Bob Bay are significantly higher than those in the livers of northern pike taken from any other location in Birch Lake.
- 5) Nickel and copper concentrations in the flesh of northern pike taken from Bob Bay are significantly higher than those in the flesh of northern pike taken from any other location in Birch Lake.
- 6) Although the numeric differences in this data set are apparent, an individual with greater experience interpreting fish tissue information needs to evaluate these results to determine the biological significance of these statistically significant results.

There is a considerable volume of information attached to this memo. However, the key results from which I have drawn the above conclusions can be found in three places for each of the individual analyses. On the first page of each analysis, there are two values associated with PR > F headings. The first value, which is associated with the model statement, indicates the probability that the metal concentrations in the organisms

DEPARTMENT : **Pollution Control Agency**

PHONE : 296-7756

DATE : July 26, 1985

TO : Carri Lohse

FROM : Mark D.C. Schmitt
Pollution Control Specialist
Division of Water Quality

SUBJECT : **Birch Lake Fish Tissue Data**

STATE OF MINNESOTA
Office Memorandum

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- 3) Copper and nickel concentrations in the flesh of fish taken from Bob Bay are significantly higher than those in the flesh of fish taken from all locations in Birch Lake.
- 4) Nickel concentrations in the livers of northern pike taken from Bob Bay are significantly higher than those in the livers of northern pike taken from any other location in Birch Lake.
- 5) Nickel and copper concentrations in the flesh of northern pike taken from Bob Bay are significantly higher than those in the flesh of northern pike taken from any other location in Birch Lake.
- 6) Although the numeric differences in this data set are apparent, an individual with greater experience interpreting fish tissue information needs to evaluate these results to determine the biological significance of these statistically significant results.

There is a considerable volume of information attached to this memo. However, the key results from which I have drawn the above conclusions can be found in three places for each of the individual analyses. On the first page of each analysis, there are two values associated with PR > F headings. The first value, which is associated with the model statement, indicates the probability that the metal concentrations in the organisms

STATE OF MINNESOTA

Office Memorandum

DEPARTMENT POLLUTION CONTROL AGENCY

TO: Ken Haberman
Permits Section
Division of Water Quality

DATE: January 5, 1984

FROM: Virginia Reiner VLR
Monitoring and Analysis Section
Division of Water Quality JRS

PHONE: 6-7363

SUBJECT: BOB BAY MONITORING

I have reviewed the data submitted by Erie Mining Company on their Bob Bay Monitoring Program conducted in 1983 and have the following observations:

1. Copper and cobalt values do not indicate a problem in this sampling.
2. Zinc values occasionally slightly exceed chronic toxicity limits at stations near the junction with Unnamed Creek.
3. Nickel appears to be very mobile, with elevated concentrations being measured throughout the Bay Stations. Concentrations approximately twice the chronic toxicity level were measured as far as station BB-7.
4. Elevated concentrations are limited to samples drawn from near the bottom of the water column. The Unnamed Creek discharge appears to move as a discrete "slug" of water, high in conductivity, metals and sulfate, through the Bay. It is thought probably to be following the old stream channel, with no evidence of mixing with the water near the surface.

Unacceptable loadings of nickel are being contributed to Bob Bay by Unnamed Creek. Although the Agency has the option of requiring Erie Mining to conduct further biological monitoring on the Bay under clause C.11.b. of their current permit, I believe such a study would likely agree with the conclusions of the 1976 study prepared by the EQB ("Regional Copper-Nickel Study, Erie Mining Project, Biological Sampling," Mark Johnson and Steve Williams, October, 1978). This study concluded the following:

"In Bob Bay of Birch Lake, no effect on phytoplankton production was evident. However, benthic invertebrate density in Bob Bay was significantly less than in Dunka Bay. This was the result of a single genus, Tanytarsus, a genus sensitive to heavy metals which was abundant in Dunka Bay but not Bob Bay. Clams (Anodonta) from Bob Bay have accumulated significant amounts of copper in their tissue while water lilies (Nuphar variegatum) from Bob Bay have accumulated significant amounts of copper and nickel. Whether the source of these metals is the sediments or the water is unclear at this time." (p.37)

This newest study reaffirms that leaching from the metal rich gabbro continues to be a problem in Bob Bay. In 1976-77 exceedances of the copper criterion in the lower part of the Bay were noted. This study documents exceedances of the zinc criterion in the lower Bay and of the nickel criterion at the sampling stations along the entire length of the Bay. Clearly the problem is persisting and the Agency should emphasize the need for Erie to begin implementation of mitigation techniques.

VLR:jae

Curtis J. Sparks, P.E.
Page 2

Third, other parameters are concentrated in the density current. 1983 median sulfate values in Bob Bay were 480 mg/l in July and 510 mg/l in September. Copper-nickel study area streams had a median sulfate level of 6.6 mg/l. Zinc exceeded the chronic toxicity criterion in some density current samples taken in September. The highest recorded values were 60 ug/l, the criterion is 47 ug/l and the median of copper-nickel area streams was 2 ug/l. Copper also occasionally exceeded its site specific chronic toxicity criterion of 5.4 ug/l.

Fourth, according to the 1983 Bob Bay Study, water quality in the bay has worsened since the 1976-77 study. This may be due to the increased concentration of the stockpile runoff and by the elimination of the Dunka Mine dewatering discharge and the stockpiling of more lean ore in the Bob Bay watershed.

Fifth, the need for effective mitigation techniques is obvious. Both Unnamed Creek and Bob Bay are classified as 2B waters. The concentration of metals and associated stockpile runoff parameters in Unnamed Creek and the density current in Bob Bay should be decreased to be within chronic toxicity criteria and 2B water quality standards. Bob Bay monitoring should continue and Erie should be required to begin effective mitigation as soon as possible.

Conclusions

1. Stockpile runoff to Unnamed Creek forms a density current at the bottom of Bob Bay. This density current runs the entire length of the bay and is characterized by high conductivity and metals.
2. The water quality standard for nickel is being consistently violated in Unnamed Creek and at the bottom of Bob Bay. Zinc and copper occasionally exceed standards.
3. Water quality in Unnamed Creek and Bob Bay has deteriorated since the 1976-77 study.
4. Mitigative measures should be initiated to protect the water quality of Unnamed Creek and Bob Bay.

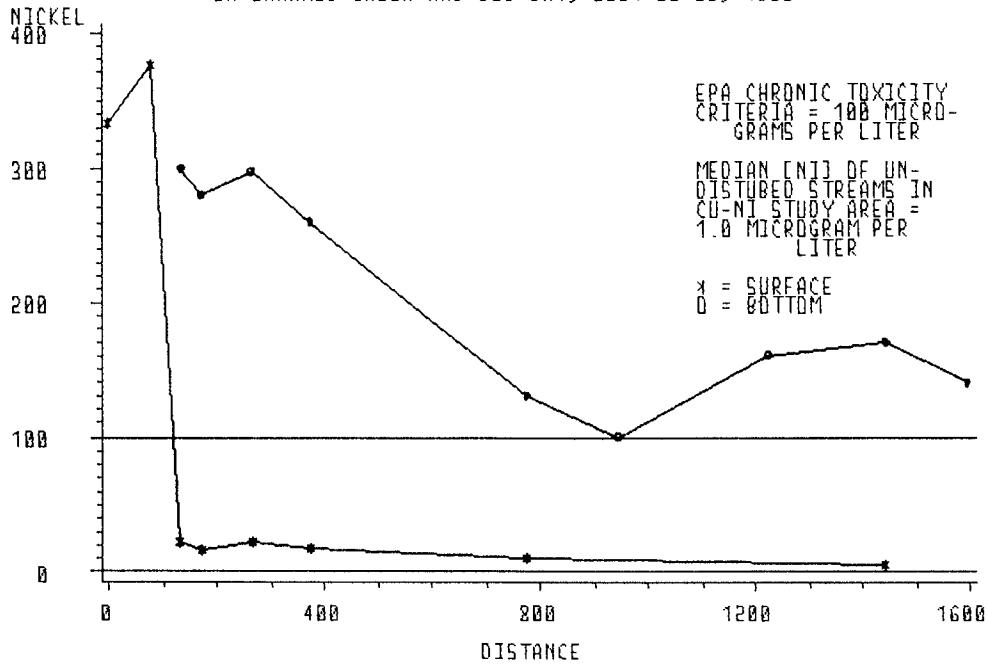
JFM/CL:jae

Attachment

cc: Ken Haberman
Mark Schmitt
Mark Tomasek

FIG. 1 NICKEL CONCENTRATION IN SURFACE AND BOTTOM WATER
IN UNNAMED CREEK AND BOB BAY, JULY 26-28, 1983

pg 12



NICKEL CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER LITER.
DISTANCE IS REPORTED IN METERS FROM EM-1.

STATE OF MINNESOTA

DEPARTMENT

Office Memorandum

POLLUTION CONTROL AGENCY

TO: Curtis J. Sparks, P.E.
Chief, Permits Section
Division of Water Quality

THRU: John F. McGuire, P.E., Chief
Monitoring and Analysis Section

FROM: Carri Lohse *CLL*
Monitoring and Analysis Section
Division of Water Quality

SUBJECT: REVIEW OF BOB BAY STUDY, 1983

DATE: December 6, 1984

PHONE: 296-7249

The Monitoring and Analysis Section has reviewed the Bob Bay Study, 1983, prepared by the Minerals Division of the Minnesota Department of Natural Resources. The section has previously reviewed the 1983 data (see memo from Virginia Reiner to Ken Haberman attached). Those conclusions and recommendations still stand. Based on the review of the Bob Bay Study, some points need to be emphasized.

First, the runoff from Unnamed Creek flows through Bob Bay in one to three days in a density current along the bottom of the bay. This density current is not greatly diluted as it passes through the bay. For example, a comparison of specific conductivity at different depths in Bob Bay reveals that the highest conductivity is found at the bottom of the water column. The highest recorded specific conductivity in 1983 was 1200 uhmos/cm at 25°C in September at the head end of Bob Bay (BB-0). On the same day, the highest recorded specific conductivity near the mouth of Bob Bay (BB-6.3) was 1000. This relatively small difference indicates that the density current mixes only slightly in the bay.

To put those high values in perspective, consider that the Minnesota Pollution Control Agency's specific conductivity water quality standard for agricultural and wildlife uses is 1000 uhmos/cm. The median conductivity for relatively undisturbed streams in the copper-nickel study area is 55.

Second, dissolved nickel concentrations exceed the U.S. Environmental Protection Agency's chronic toxicity criterion (Figure 1). In surface water in the bay, the nickel concentration (6-23 ug/l) is relatively close to that of copper-nickel area streams (median = 1 ug/l). The criterion is 100 ug/l for the protection of human consumers of fish or lower (depending on hardness) for the protection of aquatic life. Because hardness values are high in the density current, the criterion is fixed at 100 ug/l. However, if the hardness of the natural waters of Birch Lake is taken into account (\bar{x} hardness = 41 mg/l at LBH-2) the criterion is lowered to 49 ug/l. Nickel concentration is quite high in the density current (100-375 ug/l). There is a tendency for the nickel concentration to decrease from Unnamed Creek to the mouth of Bob Bay. However, nickel levels in the density current near the mouth of Bob Bay still exceed the criterion.

To: Mark Tomasek
Enforcement Section
Water Quality Division

2/28/85

From: Carri Lohse
Monitoring & Analysis Section
Water Quality Division
Reviewed by Dave Maschwitz also.

Subject: Standards Information Request from Eric Mining Company

Standards

As class 2B, 3B, 4A, 4B, 5 and 6 waters Unnamed Creek and Bob Bay have standards for the following parameters under Minnesota Rule Part 7050.0220: copper, pH, conductivity and hardness. Standards for cobalt, nickel and zinc can be developed according to Minnesota Rule Part 7050.0210 Subpart 14.

The nickel water quality standard ~~for water quality limited waters~~ is based on the ~~can be justified using~~ EPA aquatic life criteria. The criteria for most many trace metals are based on a hardness-toxicity relationship expressed by a ~~hardness-related~~ log formula developed by EPA. The

MPCA has further refined the formulas by eliminating nonresident species and salmonid species (the standard is for a warm water) (for example, chinook salmon) from the data base used to calculate the criteria.

This results in formulas with higher intercepts that yield less strict criteria. Minnesota's chronic toxicity criteria ^{for nickel} is $e^{(0.76 [\ln \text{hardness}] + 1.06)}$ as a 24-hr average. This is the formula used in Virginia Reiner's 830321 memo and my 850116 memo.

The zinc criterion is based on chronic toxicity tests in EPA's zinc criteria manual. Unlike nickel, the chronic toxicity of zinc is not affected

by hardness. The national criterion of 47 mg/l as a 24-hr average protects our freshwater resident species.

Dave Maschwitz developed the cobalt criteria from a summary of cobalt bioassay data compiled by David Lind. When my 850116 memo was written the cobalt values were tentative. Since then Dave Maschwitz has confirmed the values and used them for pretreatment standards as well.

I have two additional comments on the standards. First, ^{final} revised EPA criteria are expected within a few months. M&A will check all the state-wide and site-specific standards developed from EPA criteria for possible changes. This will include the standards for Unnamed Creek and Bob Bay.

Second, the acute criteria on my 850116 memo are for effluent standards. Those values would be used to develop standards for a discharge from a treatment system ^{in an effluent limited water}. The chronic values represent standards for waters ^{of the state} and would take dilution and background concentration into account. Because Unnamed Creek should be considered water quality limited the standards derived from chronic criteria would be controlling.

Hardness

The hardness-related log formulas are not designed for very hard water such as the stockpile runoff. 300 mg/l hardness is a general cutoff for using the formulas. Note that the hardness standard for Unnamed Creek and Bob Bay is 250 mg/l (Minn Rule 7050.0200). I used Birch Lake hardness downstream from the mouth of Bob Bay for the criteria in my 850116 memo. Further evaluation of a representative

Good
Harder
appropriate

hardness is needed

In any case, the high hardness in the multiple runoff is not a concern for the criteria formula. It is the effect of the metals on the softer natural water ~~quality~~ that is of interest

Total vs Active Metals

When the new EPA criteria come out the metals criteria derived by the formulas will be expressed as active metal, rather than as total. Previously, we have used the protective total metal to derive criteria because it is not known how much of the metal in the water is available to organisms. Active metal is measured in samples that have been acidified and then filtered.

It will be to Erie's advantage to measure active metal. However, before they switch completely to active they should run total on the same samples. We want to know what the relationship is between total and active, particularly at the seeps. If there is a consistent significant relationship then we can relate historic total data to new active data.

Note: the copper-nickel study revealed very little difference between dissolved and total metals in copper-nickel area waters.

DUNKA MINE, MINNESOTA

1. SITE INFORMATION

1.1 Contacts

Paul Eger
 Minnesota Department of Natural Resources
 Telephone: 651-259-5384
 E-mail: a.paul.eger@state.mn.us

1.2 Name, Location, and Description

The Dunka Mine is a large, open-pit taconite mine located in northern Minnesota at the eastern end of the Biwabik Iron Formation. The mine covers approximately 160 hectares and has a depth of around 100 m. It sits along the western edge of a small watershed (920 hectares), which is drained by a small stream (Unnamed Creek, Figure 1-1). The watershed is typical for this area of Minnesota and is characterized by a series of upland ridges and low areas containing wetlands. Sulfide-containing waste material from the mine was stockpiled along the eastern edge of the mine and adjacent to these wetlands.

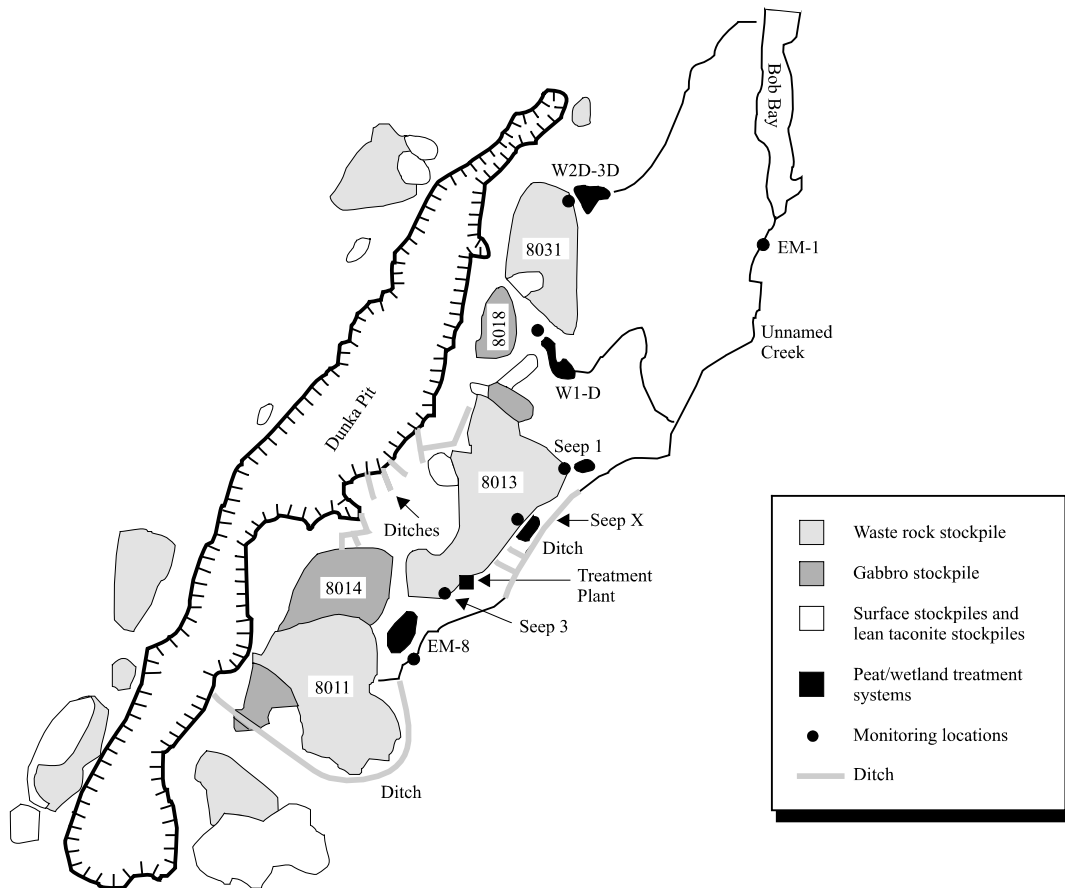


Figure 1-1. Dunka Mine waste location schematic.

STATE OF MINNESOTA
Office Memorandum

DEPARTMENT : Minnesota Pollution Control Agency
PHONE : 296-8870
DATE : Febraury 1, 1991
TO : Richard Clark
Industrial Section
Water Quality Division
FROM : Carol L. Sinden *CS*
Assessment and Planning Section
Water Quality Division
SUBJECT : 7Q10 DETERMINATION FOR UNNAMED CREEK TO BOB BAY

A low flow determination was made for the unnamed creek to Bob Bay, Birch Lake as outlined below. Attached to this memo is a definition of 7Q10 low flow, a summary of the methods used to calculate a 7Q10, and literature references to these methods.

A 7Q10 identified for the purpose of setting effluent limitations is determined to represent low flow characteristics in the receiving water above the point of discharge. Flow data from station EM-1 could not be used in the analysis because EM-1, as described in Minnesota Department of Natural Resources (MDNR) reports, receives flow from mine dewatering and several seeps, in addition to natural runoff.

Information contained in Agency files indicates that stockpile construction began for the Dunka pit around 1965-1967. The overall impact of stockpile seepage on the watershed has been monitored since 1976 at station EM-1. Flow data for the unnamed creek before mining activities began in the watershed is not available.

USGS records were reviewed and continuous record gaging stations were located on the Dunka River near Babbitt and the Stony River near Isabella. The Dunka River station is located in the northeast quarter of section 9, Township 60, Range 12 West, approximately three miles southwest of Bob Bay. This station has a period of record from 1952 to 1980. The Stony River station is located in the northwest quarter of section 17, Township 60, Range 10 West, approximately eight miles southeast of Bob Bay. The period of record for this station is from 1953 to 1964.

A computer analysis of flows for each station was completed and an annual 7Q10 low flow was calculated for each station following USGS procedures. The 7Q10 low flow for the Dunka River station is 0.081 cfs, for the Stony River station, 7.7 cfs. The Dunka River station was chosen as more representative of flow characteristics for translation to the unnamed creek watershed. Flow was proportioned by drainage area for the Dunka station and this flow per square mile was multiplied by the drainage area of the unnamed creek to obtain the 7Q10 low flow estimate of 0.0 cfs (0.005 cfs). The drainage area of the unnamed creek watershed was determined by USGS at 3.57 square miles.

This flow calculation follows established USGS procedures and is in accordance with Minnesota Rules Chapter 7050.0210 Subp. 7. which states "Where stream flow records are not available, the flow may be estimated on the basis of available information on the watershed characteristics, precipitation, run-off, and other relevant data."

7Q10 Low Flow Definition and Methods of Calculation

7Q10 low flow is defined as the lowest average discharge for seven consecutive days, having a recurrence interval of ten years. The year that a low flow will occur can't be predicted, but the probability of such flows occurring during a long time period may be estimated. For example, a low flow discharge of 3.5 cubic feet per second (cfs) having a recurrence interval of ten years indicates that a discharge at least as low as 3.5 cfs will occur as an annual minimum about ten times in one hundred years.

To derive a 7Q10 low flow, the lowest average flow in a seven consecutive day period is identified from daily discharge records at a continuous record gaging station for each year of record. The climatic year (April 1 - March 31) is used for analysis because it does not usually separate the low flow season as does the calendar year or water year. These low flow data are arrayed in order of magnitude and fit to a probability distribution. The probability distribution estimates the low flows that might recur, on the average, as an annual minimum. Data retrieval and analysis is done using a computer program available in STORET, a computerized database maintained by the Environmental Protection Agency.

Where little or no discharge information is available, other techniques are used to estimate 7Q10 low flows. One technique involves establishing a relation or regression line to transfer low flow characteristics from a continuous record gaging station to a nearby station with some flow measurements. Another technique involves calculating a rate of flow per square mile for a continuous record gaging station and translating this to the engaged site.

Procedures for calculating low flow values are outlined in the following United States Geological Survey (USGS) publications:

Biggs, H.C. 1972. Low Flow Investigations: Techniques of Water Resources Investigations of the U.S. Geological Survey. Book 4, Chapter B1. 18 p.

Windkov, K.L. 1977. Low Flow Characteristics of Minnesota Streams. U.S. Geological Survey Water Resources Investigations Report 77-48. 197 p.

Arntson, A.D. and D.L. Lorenz. 1987. Low Flow Frequency Characteristics for Continuous Record Streamflow Stations in Minnesota. U.S. Geological Survey Water Resources Investigations Report 86-4353. 15 p.

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Procedures for calculating low flow values are outlined in the following United States Geological Survey (USGS) publications:

- Riggs, H.C. 1972. Low Flow Investigations: Techniques of Water Resources Investigations of the U.S. Geological Survey. Book 4, Chapter B1. 18 p.
- Lindskov, K.L. 1977. Low Flow Characteristics of Minnesota Streams. U.S. Geological Survey Water Resources Investigations Report 77-48. 197 p.
- Arntson, A.D. and D.L. Lorenz. 1987. Low Flow Frequency Characteristics for Continuous Record Streamflow Stations in Minnesota. U.S. Geological Survey Water Resources Investigations Report 86-4353. 15 p.

Comments on LTV January 4, 1991 letter:

A 7Q10 is established for setting effluent limitations and represents low flow characteristics in the receiving stream above the point of discharge. Flow data from EM-1 cannot be used to calculate a 7Q10 low flow for the unnamed creek because flow measurements taken at EM-1 include discharge from LTV operations. Flow data before mining operations began in the watershed are not available.

Even if these flow data could be used, the figures identified by LTV in the table on page two of the letter appear to be simple computations of the lowest average discharge for seven consecutive days during the month and year specified in the table. A 7Q10 low flow value is defined as the lowest average discharge for seven consecutive days having a recurrence interval of ten years, and is calculated from an analysis of daily flows from several years of record that are fit to a probability distribution.

cc: Gary Kimball
Bill Lynott
Gene Soderbeck
Dann White

Table 5-1. Minnesota water quality standardsConcentration in $\mu\text{g/L}$; hardness in mg/L CaCO_3 .

Trace metal	Standard	Hardness, 50	Hardness, 100	Hardness, 200	Hardness, 400
Copper	CS	6.4	9.8	15	23
	MS	9.2	18	34	63
	FAV	18	35	68	126
Nickel	CS	88	158	283	508
	MS	789	1418	2549	4568
	FAV	1578	2836	5098	9136
Zinc	CS	59	106	191	343
	MS	65	117	211	3784
	FAV	130	234	421	7567
Cobalt*	CS	2.8	2.8	2.8	2.8
	MS	436	436	436	436
	FAV	872	872	872	872

Standards: CS = chronic standard, MS = maximum standard; FAV = final acute value.

CS is defined as “the highest water concentration of a toxicant to which organisms can be exposed indefinitely without causing chronic toxicity.” This is considered the ambient in stream water quality standard, which must be met on an average basis.

MS is defined as “the highest concentration of a toxicant in water to which aquatic organisms can be exposed for a brief time with zero to slight mortality. The MS equals the FAV divided by 2.” This is considered the ambient in stream concentration that cannot be exceeded on any given day.

FAV is defined as “an estimate of the concentration of a pollutant corresponding to the cumulative probability of 0.05 in the distribution of all the acute toxicity values for the genera or species from the acceptable acute toxicity tests conducted on a pollutant.” By rule, any wastewater discharge must not exceed these standards at end-of-pipe at any time.

*LTV conducted site-specific testing and demonstrated that cobalt toxicity was a function of hardness. The cobalt chronic value for the Dunka Mine was increased to $50 \mu\text{g/L}$.

Permit MN 0042579
Page 1 of 6



STATE OF MINNESOTA

Minnesota Pollution Control Agency

NORTH DISTRICT
PUBLIC NOTICE OF INTENT TO REISSUE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) AND
STATE DISPOSAL SYSTEM (SDS) PERMIT MN 0042579

Public Comment Period Begins: June 16, 2000
Public Comment Period Ends: July 17, 2000

Current Permit Issued: July 30, 1991; Modified September 30, 1994
Current Permit Expiration Date: April 30, 1996

Name and Address of Permittee

LTV Steel Mining Company
P.O. Box 847
Hoyt Lakes, MN 55750

Facility Name and Location

Dunka Mine
Sec. 26, 34 & 35, T61N, R12W and Sec. 2, 3,
10 and 11, T60N, R12W
St. Louis County, MN

Receiving Waters: Unnamed Creek, a tributary to Unnamed Creek ('Billiken Creek'), and a tributary to Birch Lake ('Flamingo Creek')

Description of Permitted Facility

The principal activity at this facility was the open pit mining of taconite. Mining began in 1964 and continued through August 1994 when active mining ceased and the facility entered the closure phase. During the 30 years of mining a considerable amount of surface and rock overburden was removed to expose the taconite ore. This material was segregated and stockpiled by type (surficial, lean taconite, waste rock (low copper-nickel %), and gabbro (higher copper-nickel %)) in stockpiles adjacent to the open pit. During later years of operation, a relatively lesser volume of high sulfur/ low copper-nickel hornfels material was removed from the Dunka Mine site and disposed of in LTV's Hoyt Lakes Tailings Basin. Water quality issues, in the form of stockpile seeps containing elevated concentrations of base metals (primarily copper, nickel, cobalt and zinc) and sulfate, became apparent in the 1970s in the vicinity of stockpiles on the east side of the open pit. Previous issuances of this permit have identified the major seepages, established monitoring requirements and effluent limitations applicable to the seepages, required the installation of treatment systems capable of meeting effluent limitations for the seepages and water quality standards for the receiving waters, and the completion of best management practices such as stockpile capping and diversion ditches to reduce the volume and concentration of the seepages. The result has been the construction of a 2.5 million gallon lined equalization basin, a 350 gallon per minute lime precipitation treatment plant, and constructed wetland treatment systems at each of the stockpile seeps.

Permit MN 0042579
Page 2 of 6

Capping of stockpiles 8011, 8012, 8013, 8014, 8018 and 8031 (the 'source' stockpiles) with compacted glacial till or flexible membrane liners, or a combination, also was completed. All of the stockpiles that only required coverage as per Minnesota Department of Natural Resources (MDNR) Mineland Reclamation Rules of 1980 were covered accordingly with (MDNR) approval.

The previous issuance of this permit required the completion and submittal of a Final Closure Plan dealing with water quality issues related to the then impending closure of the mine. The Closure Plan went through several draft submittals and revisions whereby MPCA and MDNR comments were incorporated into the document. The updated Final Closure Plan was submitted on March 15, 1996. This Final Closure Plan has gone through public review and comment in accordance with MDNR Mineland Reclamation Rules. The approved Final Closure Plan describes in more detail activities that have taken place or are proposed since active operations at the mine ceased in 1994. The enhanced stockpile caps and the water diversion structures are considered integral components for the success of the facility's wastewater treatment system. All closure activities contained in the Final Closure Plan, with the exception of the construction of the potential Dunka Lake outlet, have been completed.

Currently, the following approximate wastewater flows are present at each of the seeps:

<u>Seep</u>	<u>97-99 Ave. Flow</u>	<u>97-99 Max. Mo. Flow</u>	<u>Outfall No.</u>
041	0.117 MGD	0.372 MGD	SD007 (070)
043	0.006 MGD	0.032 MGD	SD008 (080)
044	0.058 MGD	0.149 MGD	SD009 (090)
050/051	0.045 MGD	0.144 MGD	SD005 (050)
060/061	0.072 MGD	0.376 MGD	SD006 (060)

Wastewater from seeps 041, 043 and 044 currently does not discharge directly but rather is collected (following wetland treatment) and pumped to the equalization basin during nonfreezing months for subsequent treatment at the lime precipitation plant and discharged through outfall SD004 (040). Under this reissued permit wastewater from these seeps will be discharged directly year-round through new outfalls SD007 (070), SD008 (080) and SD009 (090) respectively. Seep 042, identified in previous issuances of this permit, has been monitored since its discovery at the Dunka Mine. Closure activities that have already been enacted have resulted in improvements to the untreated Seep 042 water quality such that it complies with applicable discharge and water quality standards. Therefore, no further limitations or monitoring of Seep 042 is necessary. Wastewater from seep 051 is treated by wetland treatment and discharged through outfall SD005 (050), however, facilities are in place to collect and pump the wastewater to the equalization basin should the effluent fail to meet discharge limitations. Wastewater from seep 061 is treated by wetland treatment and discharged through outfall SD006 (060) with no ancillary collection or pumping facilities present. Outfalls SD005 (050) and SD006 (060) will remain in place in this permit. The lime precipitation plant and outfall SD004 (040) will remain in place as a backup to the wetland systems, and will be used if the wetland systems fail to achieve effluent limitations or if water quality standards in Unnamed Creek are exceeded. Chronic toxicity testing will be required at Unnamed Creek monitoring station SW001 (701).

Permit MN 0042579
Page 3 of 6

Since the mine is now inactive, mine pit dewatering has ceased and the pit is being allowed to fill with water. Dewatering discharge points and monitoring stations 010, 020 and 030 identified in previous issuances of this permit are currently not in use. Discharge outfalls 020 and 030 will be terminated and eliminated from this permit, however, discharge outfall SD001 (010) will be retained in this permit in the unforeseen event that mine pit dewatering may become necessary. Eventually the mine pit may fill to the point where an artificial discharge point may need to be established to prevent inundation of diversion ditches or stockpiles. Such discharge point, if needed, will likely be constructed at the north end of the pit and discharge to Flamingo Creek or Birch Lake. The filling of the mine pit with water and the establishment of the overflow discharge point is projected to take place at some time subsequent to the expiration of this reissued permit. A requirement to evaluate this issue and propose a discharge solution is being added as a condition to this permit. A map of this facility is on the last page of this notice.

The draft permit includes a variance from Minnesota Rules that reads as follows:

The Permittee is granted a variance from the provisions in Minn. Rules pts. 7050.0212, subp.6, and 7050.0222, subp. 7.B, that require concentrations of toxic pollutants from a point source to not exceed the Final Acute Value (FAV) at the point of discharge, for outfalls SD008 and SD009, in accordance with Minn. Rules pts. 7000.7000 and 7050.0190. The Permittee shall comply with the additive toxicity effluent limitations for outfalls SD008 and SD009, specified in the Limits and Monitoring Requirements Section and further described in Chapter 1.3.1 of this permit.

MPCA staff is recommending that the MPCA Citizen's Board approve the variance request based on the following factors. Firstly, recent biological monitoring has shown that Unnamed Creek contains an abundance and diversity of aquatic species including sensitive fish and invertebrate species demonstrating the ecological health of the stream. Secondly, the hardness concentrations in the wetland treatment systems' effluent and in Unnamed Creek are at a relatively high level that likely reduces the actual toxicity of the metals in the water. Water Quality Rules, from which the effluent limits are calculated, do not take into account the higher hardness-lower toxicity relationship to the extent that it occurs in the Unnamed Creek watershed. Thirdly, the Permittee has completed extensive remediation and reclamation activities at the mine site to reduce the volume and concentration of seepage discharges, including diversion of surface and ground water and capping of stockpiles much beyond what is required by MDNR Reclamation Rules. **Further reductions in flows and metal loads are not practically achievable.** And lastly, the cost to upgrade the existing wastewater collection system and mechanical treatment plant, which currently cannot operate during extended freezing conditions, for winter operation is not warranted for the relatively small volume of water that is discharged during the winter. Continued biological monitoring and toxicity testing of Unnamed Creek, and an evaluation to improve existing wetland treatment system performance are requirements of the proposed permit.

Preliminary Determination on the Draft Permit

The MPCA Commissioner has made a preliminary determination to reissue this NPDES/SDS permit for a term of approximately five years.



Minnesota Department of Natural Resources

1 Lafayette Road
Minnesota 55155-4045

*Pls send it on
to the file when
you're done. Thx.
Deb*

January 10, 2001

Mr. Pat Carey
MN PCA - Duluth
704 Government Service Center
320 W. 2nd Street
Duluth, MN 55802

Dear Pat:

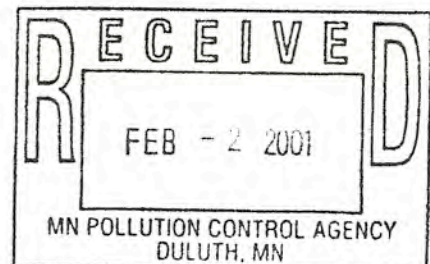
We have recently completed our final report on the long term effectiveness of wetland treatment at LTV's Dunka Mine. I have attached the executive summary, and would be happy to send you the complete report if you are interested.

Sincerely,

A handwritten signature in cursive script that reads 'Paul'.

Paul Eger
Principal Engineer

cc: Arlo Knoll



**Long Term Wetland Treatment of Mine Drainage
at LTV Steel Mining Company's Dunka Mine**

December 2000

Paul Eger
Jon Wagner
Glenn Melchert
David Antonson
Andrea Johnson

Minnesota Department of Natural Resources
Division of Lands and Minerals
500 Lafayette Road
St. Paul, MN 55155-4045

Executive Summary

A study was conducted at LTV's Dunka Mine in northeastern Minnesota to examine the long term metal removal in two wetland treatment systems that had operated for seven years. One system was an overland flow wetland that had been constructed to treat neutral drainage with an average nickel concentration of around 5 mg/L. The other was a pretreatment system which was installed to treat a drainage with an average pH of 5.4, and which contained 14.7 mg/L of nickel and 0.69 mg/L of copper.

W1D overland flow wetland

The wetland system was constructed in 1992, and the stockpile that contributed the major load to the wetland was capped with a linear low density polyethylene liner in 1995. Over 90% of the metal input to the wetland occurred before the stockpile was capped. After capping, both flow and nickel concentrations decreased. Flow decreased by 55%, while average nickel concentrations decreased by 82%, from 3.98 mg/L to 0.74 mg/L.

The overall nickel removal in the system prior to capping the stockpile averaged 89%. After capping, the input load to the wetland decreased by over 90% and the average percent removal decreased to 61%. Despite lower input concentrations after capping, nickel removal continued throughout the entire study period.

In order to examine treatment lifetime, a portion of the wetland (W1D study cell), which had accounted for 26% of the total nickel removal, was selected for detailed study. Mass balance calculations conducted for the study cell indicated that essentially all the nickel removed from the water could be accounted for by the estimated nickel mass within the substrate. There was no evidence of nickel being removed from the wetland.

Assuming that the post capping load to the wetland remains unchanged, and that new metal removal sites are formed from decaying vegetation in the wetland, there appears to be a balance between the input metal load and the yearly generation of removal sites. If this situation continues, the wetland may be self-sustaining, and treatment may continue indefinitely.

Seep 1 pretreatment system

The pretreatment system is comprised of a pool with two limestone berms, a peat-mixture substrate, and a vertical down-flow section through which the water flows prior to discharge. The system was constructed in 1992, and has generally been successful in increasing pH from an average of 5.40 to 6.95. Copper concentrations have decreased by about 70% and nickel concentrations have decreased by 55%.

The pH increase and much of the copper removal are related to dissolution of the limestone within the pretreatment system. Although it was not possible to calculate a limestone dissolution rate and an expected lifetime, there is no data to suggest that the rate of dissolution has decreased. Nickel removal within the pretreatment system averaged only 15-20%, and occurred primarily in the vertical down-flow section of the system. The major reduction in nickel load appears to be related to capping of the stockpile, and not to removal within the pretreatment system. In 1999, removal in the vertical down-flow section was only 8%, and additional data should be collected to determine if the system has reached saturation.

March 10, 2011

Commissioner Paul Aasen
Minnesota Pollution Control Agency
520 Lafayette Road N
St. Paul, MN 55155-4194

RE: Dunka Pit NPDES/SDS Permit Inconsistencies with Federal and State Law

Dear Commissioner Aasen:

Paula Maccabee is an attorney representing WaterLegacy and Bruce Johnson is a member of the Advisory Committee of WaterLegacy and a former employee of the Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (MPCA). In his prior capacity as agency staff, Mr. Johnson had direct responsibility for various aspects of study and control of discharge from the Dunka Mine. Mr. Johnson has since done extensive research regarding the discharge from the Dunka Mine and the federal and state rules that are applicable to this discharge.

Ms. Maccabee and Mr. Johnson jointly submit this letter expressing WaterLegacy's concerns pertaining to the inconsistency of the Dunka Mine National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit *MN0042579* with applicable federal and state regulations enacted pursuant to the Clean Water Act.

Although the MPCA entered into a Consent Decree on March 25, 2010 regarding the violation by Cliffs Erie L.L.C. of this Dunka Mine NPDES/SDS permit, the Consent Decree fails to address the underlying and serious concern that the year 2000 NPDES/SDS permit for the Dunka Mine is itself deficient and inconsistent with applicable federal and state regulations. We are requesting that the MPCA, with oversight of the U.S. Environmental Protection Agency (USEPA), review and reissue appropriate permits for the Dunka Mine to address the issues and concerns discussed herein.

As discussed in more detail below, the Dunka Mine NPDES/SDS permit *MN0042579* is deficient and inconsistent with federal and state regulations in the following respects:

1. The initial NPDES/SDS permit for the Dunka Mine predates the USEPA's implementation recommendations to categorize permits as "major" permits based on the level and toxicity of discharge. Since 1990, it does not appear that the Dunka Mine NPDES/SDS permit has been classified as a major discharge permit or that the USEPA has reviewed the permit for compliance with Clean Water Act requirements. The nature of metals and other toxic releases from the Dunka Mine support major permit status and greater scrutiny at both a state and federal level.
2. The year 2000 NPDES/SDS permit for the Dunka Mine does not cover all relevant pollutants and seeps. Two of the five outfalls from the mine have variances and lack discharge standards for copper, nickel, cobalt and zinc. The additive toxicity limit in the permit does not include cobalt. The NPDES/SDS permit does not set a limit for mercury, hardness or specific conductance, although discharges are likely to exceed Minnesota surface water quality standards.
3. The NPDES/SDS permit for the Dunka Mine sets toxicity standards based on high levels of hardness contributed by mine pollution, rather than according to the

uncontaminated background hardness of receiving waters.

4. The NPDES/SDS permit for the Dunka Mine sets toxicity limits based on the Final Acute Value (FAV), although the seven-day 10-year low flows (7Q10) for receiving waters (Unnamed Creek and Flamingo Creek) are zero, so that toxicity should be set using a more protective Chronic Standard (CS).
5. The NPDES/SDS permit for the Dunka Mine contains no limit for sulfates, which are routinely discharged at levels exceeding 1000 milligrams per liter (mg/L), although receiving waters drain into Birch Lake and the Kawishiwi River, both of which are known to contain stands of wild rice.
6. The NPDES/SDS permit for the Dunka Mine expired on June 30, 2005 and has not been reissued, while variances have gone more than a decade without public review. The MPCA has neither required operation of the Dunka water treatment plant nor comprehensive reductions of waste stockpile infiltration.

WaterLegacy would request that the following actions be taken by the MPCA, under the review and scrutiny of the USEPA:

- A. Categorize the Dunka Mine as a major NPDES facility, permits for which are subject to USEPA oversight.
- B. Reissue NPDES/SDS permits for the Dunka Mine, voiding variances from the year 2000 permit and imposing discharge limits as follows:
 - Limits on metals (copper, nickel, cobalt and zinc) for all seeps and outfalls in compliance with federal and state chronic (not acute) water quality standards;
 - Limits on mercury, hardness and specific conductance in compliance with federal and state surface water quality standards;
 - Additive aquatic toxicity standards including cobalt as well as copper, nickel and zinc, based on background hardness of receiving waters;
 - Sulfate limits based on the presence of wild rice in receiving waters.
- C. Require Cliffs Erie L.L.C. to take immediate steps to mitigate toxic discharge and make changes that will reasonably result in compliance with state and federal water quality standards, including but not limited to the following:
 - Operation of the on-site active water treatment plant to treat seepage water;
 - Reshaping of stockpiles so that they can be completely covered by a synthetic membrane to reduce leaching from precipitation;
 - Escrow of funds to allow for active water quality treatment, maintenance and periodic replacement of the synthetic membrane over waste rock stockpiles for at least 200 years.

BACKGROUND

From its inception, enforcement of water quality standards at the Dunka Mine near Babbitt, Minnesota has posed unique challenges due to the presence of Duluth Complex sulfide-mineralized rock at the mine. Although the Erie Mining Company and later LTV Steel Mining Company operated an open-pit taconite mine rather than a metallic sulfide mine, at Dunka their mine encountered and excavated millions of tons of sulfide rock to mine the underlying taconite.

In the mid-1970's, the Minnesota Environmental Quality Board (MEQB) and the MPCA

determined to refrain from water quality enforcement at the Dunka Mine until Minnesota had completed its *Regional Copper Nickel Study 1976-1979* and studied the chemistry of leaching, including toxicity and mitigation.¹ Excavation of sulfide-mineralized rock was recognized to pose distinctive problems.

Dunka Mine waste rock stockpiles drain into the waters of Unnamed Creek and Flamingo Creek, which flow into Bob Bay of Birch Lake. Although LTV requested that Unnamed Creek be classified as an industrial ditch (class 7), the MPCA, MDNR, and USEPA have determined Unnamed Creek should be classified under Minnesota Rules as Minnesota water. Unnamed Creek, Flamingo Creek and Birch Creek are class 2B, 3C, 4A, 4B, 5 and 6 waters under Minn. R. 7050.0430.

Birch Lake drains into the Kawishiwi River, which is classified as a 1B, 2Bd, 3C water. Minn. R. 7050.0470, Subp. 2(A)(29). The waters from the Kawishiwi River ultimately discharge to surface waters in the Boundary Waters Canoe Area, and from there to Canada's Quetico National Park. The watershed is part of the Rainy Lake Basin, is considered international waters and is under International Joint Commissions purview.

DISCUSSION

1. The NPDES/SDS Permit for the Dunka Mine Should be Considered a Major Permit.

In May of 1975 the first NPDES/SDS permit for the Dunka Mine was issued. At that time it was considered to be a "minor" permit.² This may have been because the mine was assumed to be similar to other taconite mines in the district, where discharges were fairly well understood. Major permits receive higher levels of USEPA permit and enforcement review, while minor permits are almost wholly left to states for permitting and enforcement.

In 1990, the USEPA included toxic releases in their evaluation of major permits; since then, the rating worksheet for NPDES permits includes toxic discharge considerations.³ A facility discharging to surface water with an EPA rating score of more than 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact is a "major permit."

Minnesota Rules provide that a facility with an actual or potential discharge of toxic pollutants under section 307(a)(1) of the Clean Water Act, United States Code, title 33, section 1317 must be considered a "major NPDES facility." Minn. R. 7002.0220, subp. 4(D). The list of toxic pollutants under section 307(a)(1) is provided in USEPA regulations at 40 CF.R. §401.15. Copper, mercury, nickel and zinc and compounds containing these metals are explicitly listed by the USEPA as "toxic pollutants." 40 CF.R. §401.15(22), (45), (47), (65).

The MPCA has been aware of discharge of toxic metal pollutants at the Dunka Mine since at least 1976.⁴ Although it is basic to the NPDES program that permits and effluent

¹ MEQB Letter, Paul Eger to Abner Fisch, MPCA (Dec.14, 1976) ("Eger 1976 Memo"), Attachment A.

² USEPA, email response to Bruce Johnson re FOIA Request, #05-FOI-01595-10 (Oct. 25, 2010) Attachment B.

³ USEPA, James Elder, *New NPDES Non-Municipal Permit Rating System* (June 27, 1990) and rating <http://www.epa.gov/npdes/pubs/owm0116.pdf> (last visited Mar. 8, 2011)("USEPA NPDES Memo").

⁴ Eger 1976 Memo, *supra*.

limitations be reviewed and reissued every five years,⁵ the USEPA has no records that the status of the Dunka permit has ever been reevaluated to determine whether it is a major permit under current rating systems.⁶

Based on its discharge of toxic pollutants, the MPCA should rate the Dunka Mine NPDES/SDS permit as a major NPDES facility, and the USEPA should exercise oversight in developing new NPDES/SDS requirements in compliance with the Clean Water Act. The Discussion below demonstrates that this oversight would demonstrate that, in addition to questions of non-compliance addressed in the Consent Decree, the underlying Dunka Mine NPDES/SDS permit fails to comply with federal and state rules implementing the Clean Water Act.

2. The NPDES/SDS Permit for the Dunka Mine Should Be Rewritten to Cover all Pollutants and all Seeps.

Under the Clean Water Act, it is “national policy that the discharge of toxic pollutants in toxic amounts be prohibited.” 33 U.S.C. § 1251. Copper, nickel, zinc and mercury are “priority toxic pollutants” under Section 304(a) of the Clean Water Act. Federal regulations enacted pursuant to the Clean Water Act require NPDES permits to include effluent limitations for every individual pollutant that causes, has the reasonable potential to cause, or contribute to an excursion above numeric water quality criterion. 40 C.F.R. § 122.44 (d)(1)(iii). The Dunka Pit NPDES/SDS permit fails to comply with the Clean Water Act and these implementing regulations.

In 1976, Dunka Mine waste rock seepages were determined to contain 10 to 10,000 times background levels of copper (Cu), nickel (Ni), cobalt (Co) and zinc (Zn). Total hardness, specific conductivity, and sulfate were found to exceed water quality standards, while some seepages were pH neutral and some had acid pH. Even where Dunka seepages were in a near neutral range for pH, seepages discharged nickel, cobalt, copper and zinc above biologically toxic levels. Nickel was the major trace metal discharged from the seeps.⁷

Since 1978, Dunka Mine stockpile metal releases have been tested by MPCA and others using bioassays and have been determined to be toxic.⁸ Both Unnamed Creek and Bob Bay of Birch Lake have documented impacts on their natural biological characteristics, including elevated concentrations of metals in the fish, clams, and plants.⁹ These impacts are measurable more than three miles from the farthest Dunka seepages.

Even now, 32 years after the completion of Minnesota’s *Regional Copper Nickel Study 1976-1979*, the current Dunka NPDES/SDS permit limits copper, nickel, cobalt and zinc at only three of the five outfalls from the waste rock piles and fails to include cobalt in additive aquatic toxicity calculations. The permit sets no limit for mercury, hardness or specific conductance and, as discussed separately in section 5 of this Discussion, sets no sulfate limit despite discharge into wild rice waters. *See* Dunka Mine NPDES/SDS permit *MN0042579*.

⁵ See U.S. EPA NPDES Permit Program Basics Frequently Asked Questions, available at http://cfpub.epa.gov/npdes/faqs.cfm?program_id=45 (last visited Mar. 8, 2011).

⁶ USEPA, FOIA Request, #05-FOI-01595-10, Oct. 25, 2010 phone response to B. Johnson.

⁷ MDNR, *Environmental Leaching of Duluth Gabbro In Laboratory and Field Conditions; Oxidative Dissolution of Metal Sulfide and Silicate Minerals*, DNR, 1980, pp. 191 & 202 (“MDNR 1980”), available from authors on request.

⁸ MPCA Memo, Jerry Flom to Curt Sparks, “Mine Dump Seeps,” Sept. 1, 1988, Attachment C.

⁹ MPCA Memo, Mark Schmitt to Carri Lohse, “Birch Lake Fish Tissue Data,” July 26, 1985, Attachment D; MPCA Memo, Virginia Reiner to Ken Haberman, “Bob Bay Monitoring,” Jan. 5, 1984; Attachment E.

After the MPCA and MEQB agreement not to enforce discharge limits on the Dunka Mine until completion of the *Regional Copper Nickel Study*, no subsequent permits contained discharge limits for copper (Cu), nickel (Ni), cobalt (Co), zinc (Zn), hardness, sulfates or specific conductance for an additional 15 years. Only after the Dunka Mine closed in September 1994 did the September 30, 1994 permit establish a few discharge standards and compliance locations. Three out of the five outfalls: 040 (Seep EM-8), 060 (seep W2-3d), and 050 (seep W-1d) were given limits for Cu, Ni, Co, Zn. No limits were set for mercury, hardness, sulfates or specific conductance.

The most recent year 2000 NPDES/SDS permit for the Dunka Mine changed the 1994 permit's approach of using single standards for metals to an additive model, as allowed in Minn. R. § 7050.0222 Subp.7. The 2000 permit used additive calculation values for copper, nickel and zinc, applying a maximum hardness value of 400 mg/L. The permit set a cobalt limit of 50 ug/L,¹⁰ but did not include cobalt in its additive toxicity calculation.

Cobalt's aquatic toxicity does not diminish with increased hardness, but is solely toxicity-based. Minn. R. § 7050.0222. Although cobalt discharge from various seepages at the Dunka Mine have been documented above chronic surface water quality levels (5 ug/L) and even above the level of 50 ug/L set by the MPCA in the 2000 NPDES/SDS permit,¹¹ the MPCA's Dunka Mine permit did not include cobalt in additive calculations to protect aquatic species from toxic metals. This omission makes any toxicity assessment under the permit incomplete and inaccurate.

The most recent NPDES/SDS permit for the Dunka Mine also failed to place permit limits for mercury. Both Birch Lake and the Kawishiwi River, receiving waters for the Mine, are impaired waters for mercury. Minnesota Rules establish a limit of 0.2 parts per million of mercury in edible fish tissue, Minn. R. § 7050.0220, and Minnesota's Statewide TMDL sets a water column water quality standard for mercury in the Northeast Region of 1.3 ng/L.¹² Minnesota's approved statewide TMDL includes the Dunka Mine in the Northeast Region to which this 1.3 ng/L limit applies.¹³ DMR summary data suggests that even discharges from the Dunka Mine's "treatment" wetland have exceeded this level.¹⁴

Minnesota water quality standards limit hardness in Class 3B waters to 250 mg/L. Minn. R. § 7050.0223, Subp. 3. Under Minnesota Rules, exceedance of this hardness standard is among the conditions "indicative of a polluted condition which is actually or potentially deleterious, harmful, detrimental, or injurious with respect to the designated uses." Minn. R. § 7050.0223, Subp. 1. According to the *Regional Copper Nickel Study*, background hardness conditions in ambient waters in northeastern Minnesota range from 2 to 45

¹⁰ The MPCA Dunka Mine permit, MN00042579 pp. 8, 9, sets a cobalt standard of 50 ug/L, rather than the 5 ug/L chronic standard that should be applied based on flow levels, as explained in section 4 of this discussion.

¹¹ MPCA discharge monitoring reports (DMR) for MN00042579, for example, indicate SD009 (Seep X) cobalt discharge exceeding 100 ug/L to the "treatment" wetland in 2009; SD008 (Seep I) regularly exceeding 5 ug/L, with one sample as high as 101 ug/L.

¹² MPCA, *Strategy Framework for Implementation of Minnesota's Statewide Mercury TMDL*, July 7, 2008, p. 23, Appendix 1 to MPCA, *Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load* (Oct. 2009) <http://www.pca.state.mn.us/index.php/view-document.html?gid=11481> (last visited Mar. 8, 2011).

¹³ MPCA, *Minnesota Statewide TMDL Final*, March 27, 2007, p. vii, <http://www.pca.state.mn.us/index.php/view-document.html?gid=8507> (last visited Mar. 8, 2011).

¹⁴ See e.g. 2009 DMR for Dunka Mine, MN00042579, Surface Discharge Station SD007 (Seep EM-8 (041) Wetland Trmt Dschrg), average mercury of 2.2 ng/L.

mg/L.¹⁵

The hardness measured in Dunka Mine seepages ranges between 1000 to 2000 mg/L.¹⁶ Yet, the MPCA has failed to set limits for Dunka Mine hardness, even in the most recent 2000 permit. Given that Dunka Mine seepages are permitted to discharge over one million gallons per day (NPDES/SDS Permit MN00042579, p. 3), failure to limit hardness from Dunka seeps could have a significant impact on receiving waters. The Dunka Mine NPDES/SDS permit also sets no limit for specific conductance.

Minnesota's *Regional Copper Nickel Study* defined specific conductance as follows:

Specific conductance is a measure of water's ability to conduct electrical current, which in turn is the result of the presence of charged ionic species. In undisturbed igneous basins, characterized by insoluble rock, weathering is expected occur slowly. This should be reflected in low concentrations of dissolved ionic species and, consequently, low conductivity levels. This pattern was observed in the Study Area. Sites downstream from disturbed areas had median specific conductance levels almost six times higher than background sites.¹⁷

Peer-reviewed literature concludes that major ion imbalances can produce toxic effects in bioassays.¹⁸ Plant osmotic balances can be sensitive to dissolved ionic species. Elevated charged ionic species such as sulfate, calcium, magnesium, potassium, sodium, chlorides, heavy metals and other combinations of ions, individually or in aggregate, can disrupt plants' osmotic balances, stunting plant growth or killing plants.

Minnesota Rules recognize that significant ecological damage can result from elevated specific conductance levels. A specific conductance limit of 1,000 micromhos per centimeter (umhos/cm) at 25 degrees Centigrade is applicable to classes 2B, 2C, or 2D; 3A, 3B, or 3C; 4A and 4B; and 5 surface waters. Minn. R. §7050.0224, subp. 5a (A)(17). The use of conductivity for dissolved ionic species and osmotic balances is analogous to the MPCA's use of the additivity model for toxic metals; both are established to protect the health of aquatic systems.

Overall specific conductance can be demonstrated with a simple and inexpensive test. Historically, Dunka Mine seepages have routinely exceeded the conductivity standard of 1000 umhos/cm, ranging as high as 4250 umhos/cm.¹⁹ Yet, even the most recent NPDES/SDS permit for the Dunka Mine fails to set a limit for specific conductance.

In compliance with 40 C.F.R. 122.44(d)(1)(iii), which requires NPDES permits to include effluent limitations for every pollutant that causes or contributes to an excursion above a numeric water quality criterion as well as the Minnesota Rules specifically identified above, the Dunka Mine NPDES/SDS permit should be rewritten to include all seeps, to include cobalt in its additive toxicity model, and to set limits for mercury, hardness and specific conductance.

¹⁵ Thingvold D., *Water Quality Characterization of the Copper Nickel Research Area* (Dec. 1979) Table II; Legislative Library # TN443.M6M55#153, ("Thingvold 1979").

¹⁶ See e.g. 2009 DMR for Dunka Mine, MN00042579.

¹⁷ Thingvold 1979, *supra*, p. 18.

¹⁸ See e.g. "Major Ion Toxicity in Effluents: A Review With Permitting Recommendations," *Environmental Toxicology and Chemistry*, Vol. 19, No.1 pp. 175-182, 2000; "Toxicity of Total Dissolved Solids Associated With Two Mine Effluents To Chironomid Larvae And Early Life Stages of Rainbow Trout," *Environmental Toxicology and Chemistry*, Vol. 19, No. 1 pp. 210-214, 2000.

¹⁹ See Dunka Mine DMR, MN00042579; for example, the 7/31/90 DMR for seep 40500 (W1-d).

3. The NPDES/SDS Permit for the Dunka Mine Should Reduce Limits for Copper and other Metals Based on Background Hardness of Receiving Waters.

Water quality standards in relation to hardness in Minnesota have been based on USEPA's last revised National Ambient Water Quality Criteria (AWQC) set in 1985 and adopted by MPCA in 1990. These criteria are published by EPA under requirements of Section 304(a) of the Clean Water Act and analytical methods for the determination of whole effluent toxicity (WET) are provided in 40 C.F.R. §136. In 2004, the USEPA published guidance on the establishment of whole effluent toxicity limits in permits. The USEPA recommended that dilution water for WET limits be "uncontaminated" receiving water or lab synthetic of similar pH and hardness.²⁰

Data taken from the *Regional Copper Nickel Study* suggests that uncontaminated receiving water near the Dunka Mine would have an average hardness of approximately 27 mg/L.²¹ Yet, the hardness value used by MPCA in calculating the limits for Dunka Mine discharge for copper and zinc appears to be 400 mg/L and the hardness for nickel appears to be around 200 mg/L.²² These hardness values fall far outside the uncontaminated natural conditions of the area's receiving waters.

Dunka Mine waste rock seepages above 1000 mg/L, as described previously, suggest that contamination from the leaching process at the mine is the source of any hardness in receiving waters exceeding historical levels. It is well known that rock surface exposure to precipitation leaches cations, increasing hardness levels. Natural water hardness in the area is predominantly from calcium, with approximately 20 percent from magnesium and other minor sources.²³ Leachate from the Dunka Mine has a different chemical composition as well as a higher hardness level than uncontaminated waters. For example, Seep 3 from the Dunka Mine has had hardness calculated to be 1596 mg/L, based almost 50 percent on magnesium leachate.²⁴

Setting Dunka Mine copper, zinc and nickel levels or whole effluent toxicity limits based on a hardness value of 200 or 400 mg/L conflicts with the practice of basing standards on uncontaminated receiving water and inappropriately elevates the allowable concentration of metals in the discharges. A particular risk to the aquatic environment is posed by nickel discharge, since nickel does not form permanent or tight bonds with elements in hard water that might precipitate the nickel or detoxify its effects.²⁵ If large volumes of lower hardness surface water are mixed with mine leachate, the stability of nickel in the aquatic ecosystem cannot be assumed.

The NPDES/SDS permit should use background hardness levels, rather than hardness resulting from Dunka Mine leachate contamination to set whole effluent toxicity permit

²⁰ USEPA, *National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program*, p. 28, (Dec. 28, 2004)
http://water.epa.gov/scitech/swguidance/methods/wet/upload/2004_12_28_pubs_wet_draft_guidance.pdf
(last visited Mar. 8, 2011).

²¹ Thingvold 1979, *supra*, Table p. 240, pp. 18-19, Tables 13 & 14. Hardness can also be calculated from Minnesota *Regional Copper Nickel Study 1976-1979 Volume 1*, Executive Summary, August 31, 1979, Table 4, <http://www.leg.state.mn.us/docs/pre2003/other/792632.pdf> (last visited Mar. 8, 2011).

²² Compare the numerical limits on p. 15, Dunka Mine NPDES/SDS permit MN00042579 with Minn. R. §7050.0222, subp. 2 and Minn. R. 7050.0205 subp. 2 and 13.

²³ USFS, Superior National Forest, BWCA Lake Data Analysis Report, Bonnie Dovenmuehle, Forest Hydrologist, June 1980, p. 6.

²⁴ MDNR 1980, *supra*, p. 209.

²⁵ *Id.*, p. 202; Thingvold 1979, *supra*, pp. 56-57.

levels for copper, zinc and nickel.

4. Dunka Mine NPDES/SDS Permit Limits for Copper and other Metals Should Be Reduced to Comply with Chronic Standards at the Point of Release.

In addition to using an incomplete additive model for aquatic toxicity and artificially elevating the whole effluent toxicity level by considering hardness pollution from the Dunka Mine, the 2000 Dunka Mine NPDES/SDS permit improperly relaxed toxicity standards by using acute rather than chronic toxicity limits.

The Dunka Mine NPDES/SDS permit calculates toxicity limits using the Final Acute Value (FAV) although MPCA internal documents suggest that water quality staff recognized that “standards derived from chronic criteria would be controlling.”²⁶

The Final Acute Value is only applicable where receiving waters have sufficient flows to dilute the impact of toxic effluent. Minnesota Rules require that water standards be met when a discharge *enters* waters of the state, in this case where seepages are released to Unnamed Creek and Flamingo Creek. The “7Q10” value reflects the stream flow that occurs over 7 consecutive days and has a 10-year recurrence interval period, or a 1 in 10 chance of occurring in any one year. State Rules do not allow mixing zones when the receiving water has a 7Q10 of zero. Minn. R. 7050.0210, subp. 7. Where 7Q10 stream flows are insufficient to dilute effluent, a Chronic Standard (CS) must apply. Minn. R. 7050.0222, subp. 7(C).

Currently, four of the Dunka Mine seepages discharge into Unnamed Creek²⁷ and approximately one-third of the 4.25 square mile Unnamed Creek sub-watershed is covered with waste rock stockpiles.²⁸ Unnamed Creek has a 7Q10 water flow of zero.²⁹

One of the Dunka Mine seepages drains into Flamingo Creek, an intermittent stream that also discharges into Birch Lake. Flamingo Creek also has a 7Q10 water flow of zero. Since the 7Q10 of both Unnamed Creek and Flamingo Creek are zero, the Dunka Mine NPDES/SDS permit must establish toxicity based on a Chronic Standard.

The Dunka Mine Case Study prepared by the MDNR in August 2010 reflects the impacts on water quality standards resulting from setting an artificially high hardness level and substituting an acute limit for the appropriate chronic water quality standard. For example, in the case of copper, the chronic water quality standard at even the hardness level of 50 mg/L would be 6.4 ug/L, while the acute water quality standard at 400 mg/L would be 126 ug/L, *nearly 20 times as high*.³⁰ Chronic water quality standards at actual background hardness levels for these waters (approximately 30 mg/L) would be yet more stringent.

The 2000 Dunka Mine NPDES/SDS did not use valid procedures to determine compliance with the Clean Water Act as required by 40 C.F.R. 122.44 (d)(1)(ii) and must be revised to set appropriate chronic standards for discharge of toxic metals.

²⁶ MPCA Memo, Carri Lohse to Mark Tomasek, “Standards Information Request from Erie Mining Company,” Feb. 28, 1985, Attachment F.

²⁷ See MDNR, Dunka Mine Case Study (August 2010), (“MDNR Dunka Case Study”), Figure 1-1, available at http://www.itrcweb.org/miningwaste-guidance/cs_dunka_mine.htm (last visited Mar. 8, 2011)

²⁸ See Thingvold 1979, *supra*, Table 1 regarding watershed size and see Attachment G, Schematic of Dunka Mine waste locations, taken from MDNR Case Study, *supra*.

²⁹ MPCA Memo, Carol Sinden to Richard Clark, “7Q10 Determinations for Unnamed Creek to Bob Bay,” Feb. 1, 1991, Attachment H.

³⁰ MDNR Dunka Case Study, *supra*, Table 5-1, Attachment I.

5. The NPDES/SDS Permit for the Dunka Mine Should Limit Sulfate Discharge in Compliance with the Wild Rice Sulfate Water Quality Standard.

The Dunka Mine NPDES/SDS permit contains no limits for sulfate discharge, although both the Kawishiwi River and Birch Lake contain stands of wild rice. An MDNR conservation officer in Ely recently confirmed that Birch Lake bays upstream of Bob Bay (Kangas and Kramer), where Dunka Mine receiving waters enter Birch Lake, have productive stands of wild rice and that the Kawishiwi River also contains wild rice.³¹

It is highly likely that sulfate discharge from the Dunka Mine to Birch Lake and the Kawishiwi River would exceed Minnesota's water quality standard limiting sulfate to 10 mg/L in wild rice waters during periods when the rice may be susceptible to damage from high sulfate levels. Minn. R. 7050.0224. The rate of sulfate release from the Dunka Mine waste rock stockpiles has been relatively consistent over the past 30 years, averaging approximately 1750 mg/L of sulfates.³² Most of the sulfate data from Dunka Mine seepage ranges from 1000 to 2500 mg/L of sulfate.³³ Releases of sulfate do not demonstrate seasonal variations except in a couple of months in the winter when everything freezes.

Failure to set a sulfate water quality limit in the Dunka Mine NPDES/SDS permit is inconsistent with Minnesota Rule 7050.0224 and with federal regulations requiring permits to include effluent limitations for every individual pollutant that causes, or contributes to an excursion above a numeric water quality criterion. 40 C.F.R. § 122.44(d)(1)(iii).

6. The NPDES/SDS Permit for the Dunka Mine Has Expired - Variances Should be Disallowed and a New Permit Issued.

USEPA limits the effective term of state NPDES/SDS permits to five years. 40 C.F.R. §122.46 (a). The last permit issued by the MPCA for the Dunka Mine was on August 3, 2000. By its own terms, the permit expired June 30, 2005.

Minnesota law also limits variances from water quality standards to a term of three years and requires both agency and public review at least every three years. Minn. R. 7050.0190, subp. 3. The Dunka Mine NPDES/SDS permit explicitly allowed variances from state water quality standards for discharges from two of the wetland "treatment" systems (outfalls SD009 (Seep X) and SD008 (Seep 1)). The agency's rationale for these variances was provided in a June 2000 Public Notice with a comment period ending on July 17, 2000.³⁴ No public review of the variances contained in the Dunka Mine NPDES/SDS permit has taken place since 2000.

The MDNR Case Study suggests that the use of an acute, rather than a chronic water quality standard for Dunka Mine discharge should also be considered as a variance,

³¹ Personal conversation, Bruce Johnson and MDNR Conservation Officer Marty Stage from Ely on or about Dec. 30, 2010.

³² Eger, P. and Lapakko, K, MDNR, *Environmental Leaching of Duluth Gabbro under Laboratory and Field Conditions: Oxidative Dissolution of Metal Sulfide and Silicate Minerals*, (1980), p. 196. Median average sulfate seepages from Dunka stockpiles were approximately 1250, 2500, 1500 mg/L, comparable to MPCA's more recent DMR data for Dunka Mine MN0042579.

³³ See e.g. MPCA DMR Summary Reports for Dunka Mine, MN0042579, SD 005, SD 007, SD 009 for 2007 and 2008.

³⁴ Public Notice of Intent to Reissue NPDES/SDS Permit 0042579, Public Comment Period June 16, 2000 – July 17, 2000, Attachment J.

subject to public review after three years. The Case Study explains:

Originally, permit standards for the mine were based on chronic toxicity values, which were up to an order of magnitude lower than acute values. When the company went bankrupt several years after the mine had closed, it sought a variance for several of the discharges. The new permit based on FAV included biological monitoring.³⁵

The Dunka Mine NPDES/SDS permit is long overdue for review and reissuance. Both explicit variances for seeps contained in the permit and less obvious variances due to application of an acute water quality standard must be subjected to USEPA oversight and to public review as well as to MPCA scrutiny.

7. Measures to Reduce Non-Compliance, Including Operation of the Water Treatment Plant and Redesign of Waste Stockpiles Should be Immediately Implemented.

Review of documents pertaining to the Dunka Mine suggests that there are measures that would be available immediately to reduce discharge of toxic pollutants and exceedance of water quality standards.

The Dunka Mine currently provides passive treatment of seeps through constructed wetlands. The Dunka Mine also has a lime precipitation plant on site for active water treatment, but the NPDES/SDS permit only requires its use as “backup treatment” if monitoring at outfalls SD007, SD2008 or SD009 indicates that additive toxicity effluent limits are being exceeded or at the determination of the MPCA Commissioner. (NPDES Permit MN00042579, pp. 4, 16, 17). Despite continued violations of permit limits, this plant is not in operation and best information suggests that it has not operated for at least two decades.

The MDNR Dunka Case Study explains that rejection of active water quality treatment was a choice made by Cliffs Erie based purely on operating cost considerations:

In 1986, LTV conducted a preliminary feasibility study to determine the best method to mitigate the drainage problem at the Dunka Mine, examining both active treatment systems (lime treatment, reverse osmosis) and passive alternatives (limiting infiltration into stockpiles, wetland treatment) (Barr Engineering 1986). An active treatment plant which would treat all the stockpile drainage was projected to have a capital cost of \$8.5 million and an annual operating cost of \$1.2 million. The passive alternative was projected to cost \$4 million to construct but only \$40,000 in annual maintenance. Since mine drainage problems can persist for over 100 years, LTV decided to pursue passive alternatives.³⁶

The MPCA’s failure to require operation of the Dunka Mine water treatment plant both results in excursions above water quality limits and provides misleading information to future permittees as to the costs of protecting water quality from ongoing acid mine drainage. Consistent and continuous use of an active water treatment system should be required for Dunka Mine discharge.

³⁵ MDNR Dunka Case Study, *supra*, p. 8.

³⁶ MDNR Dunka Case Study, *supra*, p. 2, emphasis added.

Treatment in constructed wetlands reduces some toxic metals discharge, but wetlands removal is inconsistent and as much as 80 percent of nickel from Dunka Mine leachate may remain.³⁷ Capping of stockpiles to reduce infiltration is a more effective way to reduce leachate,³⁸ and is also required by Minnesota mineland reclamation rules.

The majority of the Dunka Mine waste rock was stockpiled using methods that were commonly used in taconite mining for non-sulfide waste rock. As explained in the MDNR Dunka Case Study, this design does not facilitate capping:

[T]he piles were constructed to place the maximum amount of material in the minimum area. Stockpiles were generally built in 10-15 m lifts with 45° side slopes. Only the flat top portions of the stockpiles could be economically covered.³⁹

Regulators have not required Cliffs Erie to reshape the stockpiles so that capping can minimize infiltration through side slopes. In addition, local availability of clay is limited, and clay was rejected in favor of soil for covering the waste rock stockpiles due to transportation costs.⁴⁰

In order to achieve compliance with water quality standards and to accurately determine the costs of mine reclamation in sulfide-bearing rock, MPCA should require operation of active water treatment and work with MDNR to require stockpile redesign and capping of stockpiles with non-permeable material to reduce infiltration.

CONCLUSION

NPDES/SDS permits protect waters of the United States and waters of the State of Minnesota from unacceptable levels of pollutants. As detailed above, the MPCA's existing NPDES/SDS permit for the Dunka Mine fails to provide this protection. By limiting the scope of permit coverage and misapplying water quality standards, these permits may create a misleading impression of compliance or that non-compliance has a limited scope.

Minnesota's continuing lack of appropriate NPDES/SDS limits for copper, nickel, zinc, cobalt, mercury, hardness, specific conductance and sulfates from the Dunka Mine results in failure to protect the waters of Unnamed Creek, Flamingo Creek, Birch Lake and the Kawishiwi River. In addition, these practices could set precedent for much larger scale sulfide mines proposed in the Duluth Complex formation. Providing implicit variances by deviating from appropriate application of water quality standards is a practice that must be rejected as contrary to the Clean Water Act and misleading to the public.

In addition, failure to require Cliffs Erie to utilize active water quality treatment, reshape and cover stockpiles and take such other measures to achieve compliance creates a false understanding of the costs of meeting water quality standards. The MPCA, MDNR and proponents of sulfide mine projects need accurate and complete information as to the

³⁷ MDNR, *Long Term Wetland Treatment of Mine Drainage at LTV Steel Mining Company's Dunka Mine*, December 2000, p. vi, Executive Summary attached to MDNR letter from Paul Eger to Pat Cary, MPCA (Jan. 10, 2001), Attachment K, "Nickel removal within the pretreatment system averaged only 15-20%, and occurred primarily in the vertical down-flow section of the system. The major reduction in nickel load appears to be related to capping of the stockpile, and not to removal within the pretreatment system."

³⁸ *Id.*

³⁹ MDNR Dunka Case Study, *supra*, p. 3.

⁴⁰ *Id.*

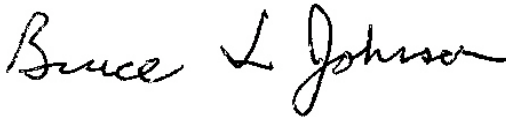
costs of meeting federal and state water quality standards over a period of hundreds if not thousands of years during which mine drainage problems can persist.

Before NPDES/SDS permits are proposed for new proposed mining incursions into sulfide-bearing rock, the MPCA and USEPA must review historic discharge and permitting at the Dunka Mine, establish rigorous and fair application of water quality standards, subject permitting and variance proposals to public scrutiny and require implementation of measures that would bring discharge into compliance with federal and state rules.

We would welcome the opportunity to discuss our issues and concerns with you. Mr. Johnson can be reached at 763-444-4579 or bmjohnson@sprintmail.com and Ms. Maccabee can be reached at 651-646-8890 or pmaccabee@justchangelaw.com.

Thank you for your consideration of our comments and suggestions.

Sincerely yours,



Bruce Johnson
Advisory Committee for WaterLegacy



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EPA nixes legislative efforts to halt sulfate enforcement

Letter says state laws passed in 2015 and 2016 violate Clean Water Act

Posted Wednesday, March 23, 2022 9:29 pm

Marshall Helmberger

REGIONAL— The federal Environmental Protection Agency has informed Minnesota pollution regulators that they are required to enforce sulfate limits designed to protect wild rice, despite a series of legislative efforts to prohibit enforcement of the pollution standard. The letter could have significant repercussions for Minnesota's taconite industry, which has been discharging high levels of sulfate for decades.

The Minnesota Legislature, in an effort led by Iron Range lawmakers, passed laws in 2015 and 2016, both signed by then-Gov. Mark Dayton, that effectively prohibited the Minnesota Pollution Control Agency from enforcing the state's strict sulfate limit of 10 milligrams per liter for wild rice waters. The laws prompted the MPCA to leave sulfate limits out of a new permit, still in litigation, that it issued for U.S. Steel's Minntac tailings basin north of Virginia. It also suspended enforcement of a schedule of compliance contained in the permit for U.S. Steel's Keetac plant near Keewatin, which was supposed to bring that facility into compliance with the wild rice sulfate limit as of 2019. Minnesota Indian tribes and environmental groups have been pushing for more than a decade to get the MPCA to enforce the 1970s-era sulfate standard for wild rice waters. Those efforts have had limited success, at least until now.

In a Feb. 16 letter, the EPA's regional administrator and Great Lakes national program coordinator, Debra Shore, states that the 2015 and 2016 laws suspending enforcement of the wild rice standard "are inconsistent with the Clean Water Act." The EPA letter states that the agency is disallowing the MPCA's efforts to comply with the state laws enacted in 2015 and 2016 as "an improper modification" to its water discharge, or NPDES, permitting program.

According to the EPA letter, the federal agency has authority under federal law to review statutory or regulatory changes made by states if they impact permitting under the Clean Water Act.

"Our review found that the 2015 Sulfate Law and 2016 Sulfate Law: 1) limited MPCA's ability to include sulfate water quality-based effluent limits in NPDES permits that are required to comply with Minnesota's federally-approved sulfate water quality standard, and 2) invalidated sulfate effluent limits in any existing state permits."

The EPA's position puts the MPCA on notice that it is expected to abide by the federal laws pertaining to industrial permitting, rather than state laws, if the state laws contradict federal regulations.

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MPCA spokesperson Darin Broten said the state agency is abiding with the federal law. "The agency will continue to follow the EPA's guidance as long as the Clean Water Act requires us to act or as the result of future litigation," he said.

Impact on mining industry

U.S. Steel's Keetac plant is the facility most immediately affected by the EPA's letter. The MPCA had issued a new Keetac permit in 2011 that required the company to meet the wild rice standard for the first time and established a schedule of compliance that gave the company until 2019 to do so. That requirement was quickly suspended by legislative action. However, the EPA letter states that the schedule of compliance is now enforceable, either by the MPCA, the EPA, or a citizens lawsuit.

The effect on Minntac is less clear given court rulings last year under which that operation will likely need to begin a clean-up of its tailings basin water, which discharges high sulfate wastewater into both ground and surface water through seepage under its tailings basin dike.

A new NPDES permit for the tailings basin, issued in 2018 by the MPCA, has been in litigation for the past four years.

The Minnesota Supreme Court, last year, had sided with the MPCA in its decision to enforce a federal sulfate standard of 250 mg/l on contaminated groundwater under the Minntac operation. The high court also remanded the question of whether the contaminated seepage under the tailings basin dike constitutes a discharge to surface water under the Clean Water Act. The MPCA had originally determined that it did not, but a recent U.S. Supreme Court ruling in the case of County of Maui v. Hawaii Wildlife Fund, found that contaminated discharge through groundwater is regulated under the Clean Water Act if it is the "functional equivalent" of a direct discharge. The Minnesota Supreme Court subsequently concluded that the Maui case was applicable to Minntac's seepage and that the MPCA must reevaluate its decision based on the standards applied in the Maui case.

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