

Public Comments to Public Hearing Record In the Matter of:
 Minnesota Environmental Quality Board's Proposing Amendments to Rules Relating to
 Environmental Review
 of
 Willis Mattison
 Before Presiding Judge: The Honorable Laura Sue Schlatter
 Office of Administrative Hearings
 OAH Docket # 80-9008-35532

July 15, 2019

My name is Willis Mattison; I reside at 42516 State Highway #34, Osage Minnesota.

I wish to express my appreciation to Your Honor, to the Office of Administrative hearings and the EQB staff and Board for offering this contested case hearing opportunity to submit these comments on the proposed EQB rule changes.

In my comments I attempt to make the following points:

1. My qualifications for making these comments are exceptional and should be given appropriate weight;
2. The public hearing process was necessary to hold the EQB accountable for compliance with applicable law through means of an objective third party;
3. Minnesota and the entire globe are in existential environmental climate, ecosystem and human health crises;
4. The EQB's proposed rule changes are wholly oblivious too and entirely inadequate to adequately address these looming crises;
5. The proposed rule changes are not compliant with the Minnesota Environmental Policy Act (MEPA) and the Minnesota Administrative Procedures Act (MAPA);
6. The EQB has not properly exercised its authority and legal obligation to utilize unbiased advisory panels to assess the effectiveness of environmental review and make recommendations for changes;
7. The Administrative Law Judge has available basis in record and legal options for remanding the proposed set of rule changes to the EQB with instructions for revisions demonstrating compliance with certain requirements MEPA and MEPA and to empanelling unbiased advisory panels of qualified experts to make recommendations that would be both MEPA and MAPA compliant.

1. My Qualifications and Why They Are Important

Just as an expert witness' testimony at trial must be weighed by a judge or jury as having far more weight than the ordinary citizen I, without apology, submit that my credentials are exceptional for addressing the issues contested in this proceeding. Also, my points of view expressed in these comments are without financial conflict of interest. I have no personal or professional stake in the issues or the outcome of these deliberations other

than that I am a human animal and have friends and family that will suffer the environmental or health consequences of poor decisions or, more hopefully, enjoy the benefits of better government decisions made on the basis of high quality environmental review documents.

I hold a Masters Degree in Biology with emphasis in Ecology with double undergraduate degrees majoring in Biology and the Broad Sciences and a minor in Chemistry. I have biochemistry research and laboratory bench experience at the Mayo Clinic, seven years teaching experience in biology, chemistry and environmental sciences, nearly 30 years regulatory government agency experience as Regional Director and practicing ecologist for the Minnesota Pollution Control Agency (MPCA). Some of my relevant ecological responsibilities for the MPCA included both preparation and reviews of local, state and federal environmental review (ER) assessments and environmental impact statements (EIS), review of local, state and federal, natural resource management plans with authority to author original documents and draft official agency positions and comments on ER and planning documents prepared by others.

I also performed field assessments of stream and lake ecosystem condition participating in establishment of metrics for gauging ecosystem diversity and biological integrity. I'm trained in forest, prairie and wetland ecosystem assessments with emphasis on native plant community metrics.

My MPCA job description included my role as citizen and Tribal ombudsman to the MPCA Board and staff where my responsibility was to enable and empower the public to more fully understand and effectively participate in both policy-making and major project decision-making functions of the Agency and serve as front line trouble-shooter as contentious program or controversial project issues arose.

I hold memberships and actively participant in the activities of the National Association of Environmental Review Professionals, the American Association for the Advancement of Science, the International Association for Public Participation, the Society of Outdoor Recreation Professionals regularly reviewing their journals and publications.

I have continued my environmental review, commentary and citizen advocacy activities into retirement preparing extensive comments of my own while advising and assisting citizen and Tribal groups and individuals to more fully understand and effectively participate in the ER process. Cumulatively, I have over forty-five years of intimate experience with ER under the National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA) working with many local, state and federal agencies while maintaining my role as ombudsman for citizens and the public interest.

To ground my work during my career reviewing ER documents it was essential that I understand the goals, purposes and implementation of the National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA), and the administrative rules implementing MEPA as promulgated by the Environmental Quality Board.

I also recently (2017-2018) served as a volunteer citizen/scientist on the most recent Environmental Review Advisory Panel formed to provide advice to the Environmental Quality Board on proposed or needed changes to EQB rules and policies. (More on that experience in part 6 below).

My comments below are submitted in response to the Environmental Quality Board (EQB) proposal to adopt certain changes in its environmental review rules which are offered by the EQB at least in part to comply with 2012 legislative amendments to MEPA.

2. Public Hearings Before an Independent Third Party Law Judge Was Necessary to Hold the EQB Accountable.

Many citizens, Tribal members and scientists strenuously objected to the EQB's notice of intent to adopt the proposed rule changes without benefit of public hearings. We believe the Office of Administrative Hearings role in the proposed rule changes is a vital one because for decades, the EQB Board and staff have been extraordinarily unresponsive to informed citizen and scientist's ardent calls for major revisions to EQB rules, guidance and prepared forms (Environmental Assessment Worksheet or EAW).

The EQB granted our request for public hearings and these public hearing presents a rare and unique opportunity for the citizens to exercise public oversight over the EQB and hold it and its member agencies accountable to its responsibilities under MEPA.

3. Minnesota, the nation and the entire globe are in existential environmental climate, ecosystem and human health crises;

Environmental issues in this century are far different and our scientific knowledge of human causes and grave consequences of environmental degradation are vastly improved over what was known in the last century when the Environmental Policy Act was passed (1970's) and when the current EQB mandatory EAW and EIS categories were first developed. And our knowledge of the "reasonable alternatives" to projects which can avoid or reduce these adverse impacts has expanded exponentially.

The EQB's rules and guidance are far out of date and are urgently in need of updating to reflect these vast new challenges and every widening new array of alternative actions that are available to prevent recurrent and predictable adverse outcomes.

Three primary categories of global environmental threats that were not nearly as well known at the birth of MEPA and the EQB are the current climate crisis, ecosystem degradation and environmental human health impacts. It would be foreboding if not impossible for anyone, including Your Honor to begin to comprehend all the studies and reports documenting the urgency of the climate, ecosystem and human health crises. But I will take the liberty of inserting some links and excerpts from several news media

reports that review reports and paste in some of the most astonishing and disconcerting key messages from these reports.

The articles below are from The Guardian but were reported in mass media with links directly to the full reports. Whether the news media coverage is complete or accurate is up to Your Honor to decide. But the scientific credibility of the U.N. Reports linked in the stories is beyond reproach.

We have 12 years to limit climate change catastrophe, warns UN

Urgent changes needed to cut risk of extreme heat, drought, floods and poverty, says IPCC

<https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-1.5c-warns-landmark-un-report>

Human society under urgent threat from loss of Earth's natural life
Scientists reveal 1 million species at risk of extinction in damning UN report

<https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report>;

Because the climate crisis is more widely known and reported in mass media Your Honor may be more familiar with the urgency of government response being called for. But the ecosystem crisis referred to here is less well known so I've taken the liberty of lifting some of the key messages from the U.N. report below:

(Beginning of excerpts from 2019 U.N. Global Assessment Summary for Policymakers)

*Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services -
ADVANCE UNEDITED VERSION – 6 May 2019*

Key messages

A. Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide.

A1 Nature is essential for human existence and good quality of life. Most of nature's contributions to people are not fully replaceable, and some are irreplaceable.

A2 Nature's contributions to people are often distributed unequally across space and time and among different segments of society. There are often trade-offs in the production and use of nature's contributions.

A3 Since 1970, trends in agricultural production, fish harvest, bioenergy production and harvest of materials have increased, but 14 of the 18 categories of contributions of nature that were assessed, mostly regulating and non-material contributions, have declined.

A4 Nature across most of the globe has now been significantly altered by multiple human drivers, with the great majority of indicators of ecosystems and biodiversity showing rapid decline.

A5 Human actions threaten more species with global extinction now than ever before.

A7 Biological communities are becoming more similar to each other in both managed and unmanaged systems within and across regions. This human-caused process leads to losses of local biodiversity, including endemic species, ecosystem functions and nature's contributions to people.

B. Direct and indirect drivers of change have accelerated during the past 50 years The rate of global change in nature during the past 50 years is unprecedented in human history. The direct drivers of change in nature with the largest global impact have been (starting with those with most impact): changes in land and sea use; direct exploitation of organisms; climate change; pollution; and invasion of alien species. Those five direct drivers result from an array of underlying causes – the indirect drivers of change – which are in turn underpinned by societal values and behaviours that include production and consumption patterns, human population dynamics and trends, trade, technological innovations and local through global governance.

B1 For terrestrial and freshwater ecosystems, land-use change has had the largest relative negative impact on nature since 1970, followed by the direct exploitation, in particular overexploitation, of animals, plants and other organisms mainly via harvesting, logging, hunting and fishing.

B2 Climate change is a direct driver that is increasingly exacerbating the impact of other drivers on nature and human well-being.

B3 Many types of pollution, as well as invasive alien species, are increasing, with negative impacts for nature.

B4 In the past 50 years, the human population has doubled, the global economy has grown nearly 4-fold and global trade has grown 10-fold, together driving up the demands for energy and materials.
(End of quotes from International Report)

4. The EQB's proposed rule changes are wholly oblivious too and entirely inadequate to these looming crises;

This point is self-evident by review of the SONAR and proposed rule changes. None of the rule changes or supporting discussion in the SONAR identify these state, national and global crises as important enough or appropriate for making any changes to EQB rules. This is unacceptable and not in compliance with MEPA or MAPA as explained elsewhere in these comments.

5. The proposed rule changes are not compliant with the Minnesota Environmental Policy Act (MEPA) and the Minnesota Administrative Procedures Act (MAPA).

The State Legislature sought to exercise its oversight of the EQB's administration of their rules in a 2012 amendment to MEPA which directed specific state agencies, at five year intervals, to examine the categories for mandatory environmental review that were created by Minnesota Rules 4410 with special attention to:

- (1) The intended historical purposes of the category;*
- (2) Whether projects that fall within the category are also subject to local, state, or federal permits; and*
- (3) An analysis of whether the mandatory category should be modified, eliminated, or unchanged based on its relationship to existing permits or other federal, state, or local laws or ordinances.*

But these are not the only purposes or requirements that must be served by the EQB's regular assessments and revisions of its rules. The EQB is also charged by its own rules with monitoring the "effectiveness" of the environmental review process and "improve their effectiveness".

The EQB's rule 4410.0400 GENERAL RESPONSIBILITIES. Subpart 1 states:

"The EQB shall monitor the effectiveness of parts 4410.0200 to 4410.6500 and shall take appropriate measures to modify and improve their effectiveness."

From the public's perspective the effectiveness of EQB rules must be judged by how well the EQB is using its rules, its authorities, its duties and its responsibilities to achieve the goals of MEPA.

The goals along with the authorities, the means, the duties and responsibilities of the EQB and all state agencies are listed in detail in MEPA (Minnesota Statutes 116D.01 through 116D.06).

More pointedly to the issues of climate crisis, ecosystem deterioration and environmental health as addressed in MEPA, (116D.02 Subd. 2) state agencies including the EQB are admonished to “use all practicable means” to address these environmental problems.

*MN Statute 116D.02 Subd.2. **State Responsibilities.***

*In order to carry out the policy set forth in Laws 1973, chapter 412, it is the continuing responsibility of the state government to **use all practicable means**, consistent with other essential considerations of state policy, to improve and coordinate state plans, functions, programs and resources to the end that the state may:*

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;*
- (2) assure for all people of the state safe, healthful, productive, and aesthetically and culturally pleasing surroundings;*
- (3) discourage ecologically unsound aspects of population, economic and technological growth, and develop and implement a policy such that growth occurs only in an environmentally acceptable manner;*
- (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever practicable, an environment that supports diversity, and variety of individual choice;*
- (5) encourage, through education, a better understanding of natural resources management principles that will develop attitudes and styles of living that minimize environmental degradation;*
- (6) develop and implement land use and environmental policies, plans, and standards for the state as a whole and for major regions thereof through a coordinated program of planning and land use control;*
- (7) define, designate, and protect environmentally sensitive areas; (8) establish and maintain statewide environmental information systems sufficient to gauge environmental conditions;*
- (9) practice thrift in the use of energy and maximize the use of energy efficient systems for the utilization of energy, and minimize the environmental impact from energy production and use;”*

It takes no stretch in interpretation of these provisions of MEPA that the EQB is charged (obligated) with using environmental review as prescribed in Minnesota Rules 4410 as one of those *practicable means* it has at its disposal to fulfill these responsibilities. In fact, it can be argued that the EQB has no greater *practicable means* than the environmental review process by which it is to carry out its “state government responsibilities” and meet its and its member agency’s duties and obligations outlined in MEPA.

The EQB holds regular board meeting, publishes the EQB Monitor, generates reports at biennial and five-year intervals and periodically holds environmental summits and conferences. But none of these other *practicable means* comes near the level of influence for public policy and project decision-making as the environmental review program.

The fact is that our climate change problem has advanced virtually unchecked to a crisis level with adverse impacts on Minnesotans our lakes, streams, wetlands, forests, pollinators, moose, tick and climate related diseases are reported daily by the news media and in the scientific literature. The state’s (and the globe’s) ecosystems continue to be degraded and destroyed at accelerating rates imperiling the planet’s ability to sustain the human economy. Only about 1% of Minnesota’s prairie ecosystem remains in small scattered parcels to the detriment of Minnesota insect and wildlife and agricultural species and Minnesotan’s health is impacted by air, water and soil abuse) groundwater aquifers are depleted and dead zones expand in Lake Winnipeg and the Gulf of Mexico is beyond question. Yet the EQB the fact that the EQB has not made anything resembling a commensurate effort to ramp up the effectiveness of the environmental review process, the very best and most powerful tool to meet these challenges, is as remarkable as it is worrisome.

It is also illegal for the EQB to ignore its responsibilities and obligations.

In its rule-making the EQB must not only comply with the Legislature’s instructions to review mandatory categories and its own rule to improve the effectiveness of environmental review it must also comply with provisions of the Minnesota Administrative Procedures Act (MAPA).

Among its primary purposes the Administrative Procedures Act lists:

- (1) *to provide oversight of powers and duties delegated to administrative agencies;*
- (2) *to increase public accountability of administrative agencies;*

MAPA goes on to state that:

*“...whenever feasible, state agencies must develop rules and regulatory programs that **emphasize superior achievement in meeting the agency's regulatory objectives** and maximum flexibility for the regulated party and the agency in meeting those goals.*

However, in its Statement of Need and Reasonableness (SONAR) for the proposed rule changes the EQB staff attempts to declare itself exempt from these provisions of MAPA on the basis that *“environmental review is not a regulatory program, and hence the EQB has no “regulatory objectives” in this rulemaking.*

I believe the EQB has reached this conclusion in error. The staff’s assertion *“that the EQB has no regulatory objectives and therefore is not required to demonstrate “superior achievement of any objectives* is contradictory to a plain reading of the statute and a misinterpretation of both the Administrative Procedures Act and of the Minnesota Environmental Policy Act (MEPA).

I would assert that, under the Administrative Procedures Act language cited the EQB, as *a state agency must develop rules and regulatory programs that **emphasize superior achievement in meeting the EQB’s and its member agency’s statutory objectives that are very clearly stated in MEPA.***

MAPA makes no provision for state agencies to self-exempt themselves from compliance with this statute. Lacking such provision, any attempt at such self-exemption should not be allowed.

The EQB and its member agencies have expansive administrative powers, duties and responsibilities prescribed in MEPA (Minnesota Statutes Chapter 116D.01 through 116D.06). These powers, duties and responsibilities are not limited to just those found in Minn Statute 116D.04 as the EQB seems to assert in the SONAR. Clearly, the EQB and its member agencies have a number of definitive environmental quality and human welfare objectives to be accomplished by administration of its rules. These objectives are found throughout Chapter 116D.01, 116D.02, 116D.03, 116D.05 and 115D .06.

These statutory responsibilities are specifically applicable to the EQB as well as collectively applicable to and inseparable from those of the individual EQB’s member agencies. MEPA in 116D.06 subdivision 2 clarifies that these agency objectives are supplemental to each agency’s existing authority where it states:

“The policies and goals set forth in sections 116D.01 to 116D.06 are supplementary to those set forth in existing authorizations of state agencies.”

Furthermore, the Legislature directs agencies to follow all provisions of MEPA, not just selected portions of the Act. In MEPA 116D.03 Subdivision 1:

“...the legislature authorizes and directs that, to the fullest extent practicable the policies, rules and public laws of the state shall be interpreted and administered in accordance with the policies set forth in sections 116D.01 to 116D.06.

So, for purposes of these rule revisions the EQB cannot sever its environmental review responsibilities under 116D.04 from all the broader context of its duties and

responsibilities, (objectives, if you will) so clearly outlined in the remaining sections of the Act.

To be even more specific, the very purpose of MEPA as stated in 116D.01 is:

“... a) to encourage productive and enjoyable harmony between human beings and their environment;

(b) to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings; and

(c) to enrich the understanding of the ecological systems and natural resources important to the state and to the nation.”

To accomplish this purpose of MEPA all state agencies, including the EQB, are given specific responsibilities as listed in 116D.02 including in Subd. 1:

“To use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state's people.

The public's demands for public hearings on the EQB's rule changes were specifically to provide opportunity for independent assessments by a third party (in the present case this would be the Office of Administrative Hearings) of these government agency failures to fulfill their MEPA duties and responsibilities (regulatory obligations). Citizens and scientists needed this public hearing forum to air complaints that the EQB was failing to fulfill its obligations under MEPA because all previous direct appeals to the EQB by scientists and the informed public have been to no avail.

6. The EQB has not properly exercised its authority and legal obligation to utilize unbiased advisory panels to assess the effectiveness of environmental review and make recommendations for changes;

My participation, on the EQB's most recent Environmental Review Advisory Panel (ERAP) as both a citizen and a experienced environmental scientist was a frustrating and very disconcerting experience. This panel was only the latest in a series of such advisory panels formed in the last 30 years that have largely ended in stalemate for two primary reasons. The panels are most often populated by a significant number of “stakeholder” interests, business and industry representatives whose livelihood and prosperity depends on using land, water and other state resources for profit. To put it bluntly, the panels were dominated by individuals with obvious conflicts of interest. Or, some previous panels were composed largely state agency representatives who were constrained by internal policy and political survival motivations.

Just yesterday a U.S. Government Accountability Office Report criticized the U.S. Environmental Protection Agency for populating some of its advisory panels with unqualified or conflicted interest members for many of these same reasons.

EPA Advisory Committees: Improvements Needed for the Member Appointment Process

GAO-19-280, Published: Jul 8, 2019. Publicly Released: Jul 15, 2019.

<https://www.gao.gov/mobile/products/GAO-19-280>

The panel I served on was no exception (see 2018 ERAP Report attached for membership details).

Secondly, the panel conducted its business (on advice of EQB staff) on a consensus basis which by virtue of its make-up assured the panel an eminence-based rather than evidence-based (weight of argument) means of decision-making.

Again and again, I introduced to the Panel evidence and highly credible reports that climate change, ecosystem destruction and human health effects were severe and growing problems in Minnesota and around the globe. And I authoritatively asserted that there were reasonable and practicable ways to use environmental review to better inform decision-makers on project alternatives to reverse these trends only to be rebuffed by special interests represented by my fellow panel members.

The public was given opportunity at the conclusion of each ERAP meeting over an 18 month period to voice their concerns about what the Panel was doing. Many citizens spoke to the issues of the climate crisis, ecosystem dysfunction and the need for human health assessments to be better addressed in the environmental review process. The Minnesota Academy of Family Physicians (MAFP) appealed to the ERAP after petitioning the EQB directly to begin including health impact assessments in EAWs and EISs. (See their letter with supporting argument attached). The ERAP's report to the EQB failed to heed either citizen's appeals to address climate change adequately or the MAFP's petition for health risk assessments. (See attached MAFP letter to EQB)

I filed several reports to the ERAP objecting to these deficiencies and finally filed a minority report directly to the EQB outlining my concerns. (see attached)

A coalition citizen and environmental groups monitoring the Panel's work and reviewing the ERAP's final report registered their formal objections and made their own recommendations for remedies in a joint 2018 sign-on letter to the EQB. One of the remedies suggested was the creation of qualified and unbiased EQB advisory panels. (See copy of that sign-on letter attached).

In a May 1st, 2010 presentation to the EQB, Chuck Dayton, one of the original authors of MEPA made criticisms of the current environmental review process and made similar

recommendations for a “Blue Ribbon” panel to conduct some sort of performance review of the EQB’s entire environmental review program.

And in

Subd.2. State responsibilities. In order to carry out the policy set forth (in MEPA), it is the continuing responsibility of the state government to use all practicable means, consistent with other essential considerations of state policy, to improve and coordinate state plans, functions, programs and resources (including administering the rules for environmental review) to the end that the state may:

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all people of the state safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

(3) discourage ecologically unsound aspects of population, economic and technological growth, and develop and implement a policy such that growth occurs only in an environmentally acceptable manner;

These, among other listed in 116D.02 and 116D.03 constitute some of regulatory “objectives” that the EQB must demonstrate will be achieved in some more “superior” fashion by adopting the proposed rules and rule changes it proposes.

And the EQB has obligatory duties as prescribed in 116D.03 **ACTION BY STATE AGENCIES.**

Subd.2.Duties. All departments and agencies of the state government shall:

*(2) utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; as an aid in accomplishing this purpose there shall be established advisory councils or other forums for consultation with persons in appropriate fields of specialization so as **to ensure that the latest and most authoritative findings will be considered in administrative and regulatory decision making** as quickly and as amply as possible;*

*(4) **study, develop, and describe appropriate alternatives** to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;*

*(5) **recognize the world wide and long range character of environmental problems** and, where consistent with the policy of the state, lend appropriate*

*support to initiatives, resolutions, and programs designed to maximize interstate, national and international cooperation in **anticipating and preventing a decline in the quality of the world environment**;*

Item #4 above is a particularly important insofar as judging the “superior achievement” (or lack of superior achievement) of MEPA objectives because the “study, development and description of alternative courses of action” for proposed projects undergoing environmental review lies at the heart of the function and effectiveness of MEPA. For environmental review to be “effective” alternatives to a project which may have less adverse impacts must be publically analyzed.

To comply with the Administrative Procedures Act the EQB’s SONAR for the proposed rule changes should have disclosed whether the proposed rules would achieved *superior* effectiveness at accomplishing MEPA objectives for “*studying, development and description of alternative courses of action*”.

By way of explanation, environmental assessment worksheets (EAWs) do not presently require consideration of alternatives. Only if an EAW concludes that a full environmental impact statement is found necessary will alternatives to a proposed action be considered. The threshold for determining the necessity for preparing an EIS is a finding by the authors of an EAW that “potential for significant impacts” from a proposed project exist are alternatives considered.

Recent EQB reports and presentations have demonstrated “*less-than-superior practice*” of agencies actively working to avoid the consideration of alternatives in the environmental review process by truncating the process at the EAW stage without proceeding to the more detailed analysis and consideration of alternatives required in an environmental impact statement (EIS). Ever greater numbers of EAW’s are prepared and fewer and fewer EISs.

The EQB has produced the following historical numbers of EAWs relative to EISs for the years 2015-18.

2015 - 66 EAWs and only 3 EISs
2016 - 61 EAWs and only 5 EISs
2017 - 98 EAWs and only 3 EISs
2018 - 94 EAWs and only 2 EISs

The EQB simply has not allowed sufficient public oversight of its rule-making activities, has not allowed itself to be held accountable to the public for these duties and responsibilities under MEPA, has not increased access to sufficient government information or allowed adequate public participation in the formulations of the proposed rule changes.

It is my intention to show by testimony and supporting evidence that the EQB staff, contrary to both the spirit and the letter of MEPA and the Minnesota Administrative

Procedures Act (MAPA) has inappropriately narrowed the scope of public access and public accountability by limiting the range of acceptable public comments to only the rules proposed for change. I assert that to be held fully accountable to public oversight, the EQB must also open itself to public comment and criticism of rules and procedures that need changing to improve their effectiveness but that EQB staff have NOT proposed for change.

I would assert that the EQB's effort to limit the public's ability to delve into other EQB rules that are either not being fully administered or are that are inadequate to achieve their intended purpose under MEPA or the Administrative Procedures act is arbitrary and capricious and as such should not be allowed in this proceeding..

116D.03 ACTION BY STATE AGENCIES.

Subd.2.Duties. All departments and agencies of the state government shall:

Item (2)utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; as an aid in accomplishing this purpose there shall be established advisory councils or other forums for consultation with persons in appropriate fields of specialization so as to ensure that the latest and most authoritative findings will be considered in administrative and regulatory decision making as quickly and as amply as possible;

7. The Administrative Law Judge has available options for remanding the proposed set of rule changes to the EQB with instructions for revisions demonstrating compliance with certain requirements MEPA and MEPA and empanelling unbiased advisory panels of qualified experts to make recommendations that would be MEPA and MAPA compliant.

To the extent that I and my fellow citizens have provided evidence at this hearing that the EQB and member agencies have not achieved *productive and enjoyable harmony between humans and their environment*; that *damage to the environment and biosphere has not been prevented or eliminated*; and that the agencies have not sufficiently *“enriched our understanding of how important ecosystems are to the our state and nation”* through its environmental review process nor has the EQB demonstrated that the proposed rule changes will produce *“superior achievement in meeting the agency's regulatory objectives”* we request that Your Honor find the EQB has failed to uphold its duties and responsibilities under both Minnesota Environmental Policy Act or the Minnesota Administrative Procedures Act.

If Your Honor concludes that this witness and other testimony in the record sufficiently shows that the EQB and its member agencies have failed to fulfill their duties and responsibilities under MEPA and MAPA it would be appropriate for Your Honor, as part of the findings, conclusions and recommendations to remand the proposed set of rules

back to the EQB with instructions the these agencies to commence a new rule and policy-making process to address these deficiencies.

Alternatively or in addition to this action Your Honor is requested to recommend that the EQB establish advisory panels (per MEPA to review the *effectiveness* of the environmental review process as required by its own rules and if not, make recommendations for changes that do *emphasize superior achievement in meeting the agency's regulatory objectives* under MEPA 116D.02 Subd.2 part 2.. Contrary to past practice, the EQB must appoint unbiased and qualified experts to this panel avoiding the clear conflict of interest (and agency bias) apparent on past panel membership.

Thank you for considering these commets.

Willis Mattison, Osage Minnesota

A CITIZEN-SCIENTIST'S STRONG BUT CONSTRUCTIVE DISSENT

My Professional Dissenting Opinion on the Environmental Review Advisory Panel's (ERAP) Report and Recommendations for More Work and Constructive Alternatives

By

Willis Mattison, Professional Ecologist, Citizen Advocate/Advisor
And ERAP Panel Member
October 15, 2018

INTRODUCTION AND PURPOSE

To begin, let me express my gratitude to the EQB Board and staff for accepting my application to be a member of the ERAP process; it has been a rare privilege to serve and an honor to be selected for this important work. The panel was made up of very fine, dignified and capable professionals and it was a distinct privilege to work with them. EQB and MAD staff serving the panel were diligent, courteous, capable and gracious and each have my appreciation.

My purpose for this report is to provide a respectful but dissenting opinion on the ERAP process and the Panel's recommendations as well as to offer constructive suggestions for addressing the problems identified here. My qualifications for making these observations and recommendations can be found at the end of this document.

COMMENTS ON THE ERAP HISTORY, STRUCTURE AND PROCESS

Bringing divergent stakeholders together to improve the MEPA environmental review (ER) process has been attempted several times before by the EQB with less than stellar, often frustrating and unproductive results. Review of an after-action survey of previous advisory panel members revealed that their specific panel's work was frustrated by failure to clearly identify a specific solvable problem or mission statement prior to forming the panel.

For the current ERAP the mission was to "modernize and improve the efficiency of environmental review". However, the current ERAP panel once again, came together with widely divergent opinions on what the problems were with ER and what the solutions might be for them.

There was broad agreement at the beginning of the ERAP process that ER was not performing well but it soon became apparent that the reasons for and outcomes of these malfunctions were dramatically different among the opinions of the divergent factions on the Panel.

It may not be too much of an overstatement that most panel members might have reached consensus that ER documents have become mind-numbingly

encyclopedic, are largely formulaic tomes of mostly irrelevant data that defy cogent analysis and are incomprehensible and therefore unusable for the public and policy-makers alike.

But because the panel had not reached consensus on what ER was actually supposed to accomplish, just how it was to accomplish it, and whether the MEPA goals for ER were by any reasonable indicators actually being accomplished the group's problem identification process and range of potential solutions explored varied quite widely and disjointedly as can be seen in the draft report.

STANDARD GROUP DEVELOPMENT PROCESS NOT USED

To avoid the stalemate predicament previous advisory panels repeatedly experienced the ERAP it seems clear that the panel would have benefited greatly from using that standard *forming–storming–norming–performing* model of group development identified by Bruce Tuckman way back in 1965. Tuckman demonstrated in his research that these phases are all necessary and inevitable in order for a team to grow, face up to challenges, tackle problems, find solutions, and deliver results.

This necessary norming process was not conducted with this Panel. Thus the vastly divergent world views between ERAP members on whether problems with ER were due to its over-performing and therefore our environment is just fine now or, alternatively that ER had been under-performing its MEPA purposes and environmental problems may not be getting better and may even be getting worse as a result. This lack of prerequisite group consensus building, in the author's opinion, appears to have led to some major malfunctions and missed opportunities by the panel.

THE PREVAILING ERAP PRESUMPTION- ER is Over-performing

The norm that prevailed throughout the Panel's work without prior consensus or much debate was that ER was far too burdensome, too costly, was too duplicative of other processes and took far too long thus was delaying and discouraging important projects. The question whether the current state of Minnesota's ecosystems, or the status of related public health problems reflected ER performance deficiencies was not discussed let alone was consensus reached on whether any ER modernization steps would be useful to resolve any known environmental or public health problems.

Allegedly, the current and excessive ER burden was driving industry and businesses to other states where the ER burden was not so ominous. Therefore, the various solutions to those particular problems that made their way into the ERAP report focus largely on ways to lighten these ER burdens. These ER burdens are proposed to be relieved by stream-lining it, eliminating mandatory categories, raising trigger thresholds, providing alternative or substituting other

existing methods of review, and even considering special rule-making that would allow proposers or RGU's to self-exempt their projects because they could be declared environmentally benign or inherently beneficial.

Complaints brought to the ERAP that claimed the public participation practices of ER were becoming less and less effective were seen as legitimate but not so serious such that simply recommending some best management practices and disclosing public participation plans in ER documents was thought adequate. Some proactive members of the ER-involved public were seen by some Panel members as interlopers who often misused ER to purposely delay and discourage projects.

Environmental Justice issues were discussed but no significant change in ER was found necessary.

Climate change, the issue looming larger and larger for global society every day is proposed to be satisfactorily addressed primarily by improving the accuracy of methods for predicting greenhouse gas emissions in ER documents.

Health Impact Assessments (HIA's) recommended for inclusion in ER by the Minnesota Academy of Family Physicians and referred to the ERAP for more in-depth consideration by the EQB Board two years ago was rejected. This was in spite of the State Health Department having developed rather detailed process and rationale for HIA's.

THE NON-PREVAILING VIEW ON THE PANEL

The other, non-prevailing view expressed by the minority on the Panel and this author is that ER needs significant modernization to more effectively meet the new challenges of climate change and the increasingly dysfunctional ecosystems becoming ever more evident in Minnesota. This author attempted to demonstrate that it is more and more the conclusion of veteran professionals and the public that ER documents do not include the vital information that the project proposers, citizens and policy-makers need to understand the complex, and often synergistic effects of environmental stressors on human health and our essential natural resources.

Current EIS documents present a decidedly reductive cataloguing of individual types of impacts, rather than a holistic, systems level analysis that would serve to clearly outline significant, cumulative impacts and elucidate viable alternatives. ER documents have largely devolved into mind-numbingly encyclopedic, largely formulaic tomes of mostly irrelevant data that defy cogent analysis and are incomprehensible to the public. This is especially true for large complex projects but is also true for some EA worksheets.

Little wonder that even the disparate factions on this ERAP and past Advisory Panels could actually agree that environmental review in its present form is burdensome, mostly irrelevant, duplicative, costly, archaic and inefficient.

But this minority view holds that environmental review (ER) has become far too shallow and lacks the scientific rigor to satisfactorily identify and disclose subtle but cumulative systemic impacts on vital ecosystems, hydro-geologic systems and public health. These are cumulative impacts that are becoming more and more evident in documented declines of Minnesota's iconic species populations, increasing prevalence of invasives and certain human health problems. Moose population decline, major walleye lake conversion to bass, birch, oak, tamarack and other tree species die-offs, honey bee and pollinator population declines are among the countless others symptoms yet undetected. Too many species extinctions are also being documented. Adverse aquifer and lake level and water quality impacts are increasing from complex mazes of overlapping extractive uses.

Most retrospective investigations of these phenomena almost inevitably reveal complex ecosystem and geo-hydrologic stresses caused by human activity acting in nexus with climate change impacts as being the primary causes these vexing problems.

And the professional health care community points to failing ecosystem services and climate change as the primary causes of a vast array of emerging human diseases and deaths especially those that are from tick and other insect borne diseases or heat and drought related causes.

The consensus of ecologists, hydro-geologists, health care professionals and other scientists is that these types of potential consequences (impacts) of human activity are well enough known as to be reasonably predictable for most projects undergoing environmental review. There are far more modern assessment tools available to the savvy ER practitioner for making these impact predictions and for describing these impacts with recognizable frames of reference the public and policy-makers can understand. But, it is also the consensus that most RGU's lack the necessary expertise in human health, ecology and other natural sciences to make these predictions, describe them in the understandable terms needed and offer practical alternative solutions or effective mitigation measures.

Likewise, many experts in civic engagement techniques have labeled most conventional public participation practices commonly used in ER as either ineffective at best or counterfeit and counterproductive at worst. This is especially true for Native Americans and other minority communities or economically disadvantaged populations. Growing numbers and intensity of public protest actions and civil disobedience are directly related to the archaic business-as-usual but failed public participation model used for ER and countless

other government policy-making exercises. These people do not believe they are being heard or that their concerns matter.

WHAT CONSTRUCTIVE RECOMMENDATIONS FLOW FROM ALL THIS?

Most of the deficiencies of the current ER process can be addressed by rather simple revision of the EAW form to eliminate requests for superfluous and irrelevant data and information and specifically request instead more pertinent data including available ecological and health related information for a proposed project. Environmental agencies should be tasked with providing RGU's the recognizable frames of reference for such complex matters as ecosystem integrity, climate change and related human health conditions to which predicted impacts of a proposed project could be compared. These ecosystem condition references and stress assessment methodologies are already available and in use for such planning purposes as Watershed Restoration and Protection (WRAP) Plans and the State's Climate Action and Climate Adaptation Plans. And the State Health Department staff has drawn up health impact assessment methodologies as well.

And the business-as-usual public participation process can readily be upgraded to more effective civic engagement techniques for scoping, EAW and EIS purposes. Excellent examples of effective civic engagement best practices were presented to the EQB by the State Human Rights Department over a year ago.

The MPCA just published an excellent review of and sets of recommendations for more satisfactorily addressing environmental justice issues.

The recommendations here call for use of existing data and expertise readily adaptable to ER and available to RGU's in ways that would actually streamline an inherently difficult process and could very much improve both its efficacy and efficiency.

These are among the most serious and major opportunities for modernizing ER missed by the current ERAP and that are recommended for referral to a new reformulated Advisory Panel. A panel that can take well established steps described above to avoid the pitfalls of past panel's structure and functions. The next section will deal with methods to create a more independent, democratic and informed Advisory Panel.

RECOMMENDATIONS FOR FORMING A NEW PANEL

The author is prepared to partner with fellow citizens, EQB and other agency staff as necessary to design and form an alternative ER Advisory Panel that is expressly constructed to be more reflective of a cross-section of Minnesota's society as a whole rather than a cross-section of the traditional stakeholders, economic sector representatives, RGU's and ER consultants.

This new Panel would be properly informed by independent experts as needed and facilitated through the group formation, norming and performing process described below.

Critics of this citizen panel notion often claim that finding an unbiased group of citizens willing to serve on such a panel is nearly impossible. To respond to these valid criticisms the suggestion here is to utilize an appropriately modified version of a well proven process described by the Sortition Foundation at this website: https://www.sortitionfoundation.org/what_is_sortition

Briefly, sortition is the use of random selection to populate a panel so it would be composed of people from the general public, not experts or special interests. It would consist of a representative random sample of ordinary but well informed people convened to evaluate the performance of the MEPA ER process in a fair, open and deliberative setting.

A process of stratified random sampling ensures that participants accurately reflect the community they are drawn from, unlike open meetings where often only socially privileged or more vocal people attend and dominate discussions. Stratified random sampling ensures that half the participants are women and half men, with proportional representation for the young and old, and across all geographical areas and both economic and educational levels. Deliberations would be facilitated by independent, objective professionals.

State agency reports and well established criteria for reliably characterizing the state of Minnesota's ecosystem, hydro-geological and public health issues related to these environmental conditions as well as the known stressors on these natural and human health systems would be provided to the Panel. The Panel would be empowered to call upon a pool of expert scientists both within and outside government agencies to assure peer reviewed information is available to the Panel.

This Panel formed and functioning in this enlightened and independent democratic manner is recommended for conducting the unfinished business of past and current EQB Advisory Panels for improving the handling of climate change issues, health risk assessments, civic engagement and environmental injustice issues in the ER process.

This essay is too short to include more detailed discussion of all the assertions made or the finer details of the proposed process for moving forward with a new ERAP. It is the recommendation of this author that the EQB Board take under advisement the recommendations of the current ERAP and then authorize the staff to begin forming the new Panel to begin competing the old Panel's unfinished work. Continuity for the purpose and charge of this new Panel between the current Board and the new incoming Board under the next Governor

and Administration can, in my opinion, ably be represented by the citizen members of the current Board as their terms in office transcend those of the Agency heads that may be leaving.

I stand for questions.

My Qualifications

I hold a Masters Degree in Ecology with undergraduate degree with double Majors in Biology and the Broad Sciences with a Minor in Chemistry. I have biochemistry research and laboratory bench experience at the Mayo Clinic, seven years teaching experience in biology, chemistry and environmental sciences, nearly 30 years regulatory government agency experience as Regional Director and practicing ecologist for the Minnesota Pollution Control Agency (MPCA). Some of my relevant ecological responsibilities for the MPCA included both preparation and reviews of local, state and federal environmental review (ER) assessments and environmental impact statements (EIS), review of local, state and federal, natural resource management plans with authority to author original documents and draft official agency comments on ER and planning documents prepared by others.

I also performed field assessments of stream and lake ecosystem condition participating in establishment of metrics for gauging ecosystem integrity.

My MPCA job description included my role as citizen and Tribal ombudsman to the MPCA Board and staff where my responsibility was to enable and empower the public to more fully understand and effectively participate in both policy-making and major project decision-making functions of the Agency and serve as front line trouble-shooter as contentious program or project issues arose.

I hold memberships and actively participant in the activities of the National Association of Environmental Review Professionals, the American Association for the Advancement of Science, the International Association for Public Participation, the Society of Outdoor Recreation Professionals regularly reviewing their journals and publications.

I have continued my ER commentary and citizen advocacy activities into retirement preparing extensive comments of my own while advising and assisting citizen and Tribal groups and individuals to more fully understand and effectively participate in the ER process. Cumulatively, I have over forty-five years of intimate experience with ER under the National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA) working with many local, state and federal agencies while maintaining my role as ombudsman for citizens and the public interest.

To ground my work during my career reviewing ER documents it was essential that I understand the goals and purposes of the Minnesota Environmental Policy Act (MEPA), the rules implementing MEPA as promulgated by the Environmental Quality Board.

Environmental Review Advisory Panel

Environmental Quality Board
October 4, 2018

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Introduction

The Environmental Quality Board (EQB) has a general responsibility to “monitor the effectiveness” and “take appropriate measures to modify and improve” the effectiveness of the environmental review (ER) rules.¹ Over the past few years, EQB staff have initiated several opportunities for public engagement, including surveys of responsible governmental units (RGUs) and citizens to monitor ER effectiveness, and stakeholder engagement to inform the Mandatory Categories rulemaking.

At times, these initiatives resulted in conflicting and competing process improvement recommendations. In February 2017, the EQB convened an advisory panel composed of members with diverse viewpoints to see if they could reach consensus and propose changes to modernize the ER program. This report documents the advisory panel’s work, including the panel process, the panel’s recommendations, and additional perspectives.

Minnesota statutes and rules on environmental review

The Minnesota Environmental Policy Act (MEPA) of 1973 established a formal process for investigating the environmental impact of major development projects. The purpose of the review is to provide information about a project’s environmental impacts before approvals or necessary permits are issued. Each review is assigned to a unit of government, the RGU, which can be a local government, state agency, or joint powers organization. Environmental review applies to public and private development projects that are site specific and contemplate on-the-ground environmental changes. Projects such as building projects, feedlots, shopping centers, mining operations, and residential developments are subject to review.

MEPA’s purpose is codified in Minnesota Statutes, section 116D.01:

The purposes of Laws 1973, chapter 412, are: (a) to declare a state policy that will encourage productive and enjoyable harmony between human beings and their environment; (b) to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings; and (c) to enrich the understanding of the ecological systems and natural resources important to the state and to the nation.

The ER process further operates according to rules adopted by the EQB. In particular, Minnesota Rules states:

The Minnesota Environmental Policy Act recognizes that the restoration and maintenance of environmental quality is critically important to our welfare. The act also recognizes that human activity has a profound and often adverse impact on the environment. A first step in achieving a more harmonious relationship between human activity and the environment is understanding the impact which a proposed project will have on the environment. The purpose of [these rules] is to aid in providing that understanding through the preparation and public review of environmental documents.²

¹ Minnesota Rules, part 4410.0400.

² Minnesota Rules, part 4410.0300, subp.3.

Minnesota Rules state that the ER process is designed to:

- A. provide usable information to the project proposer, governmental decision makers and the public concerning the primary environmental effects of a proposed project;*
- B. provide the public with systematic access to decision makers, which will help to maintain public awareness of environmental concerns and encourage accountability in public and private decision making;*
- C. delegate authority and responsibility for environmental review to the governmental unit most closely involved in the project;*
- D. reduce delay and uncertainty in the environmental review process; and*
- E. eliminate duplication.³*

ER documents serve as “guides in issuing, amending, and denying permits and carrying out other responsibilities of governmental units to avoid or minimize adverse environmental effects and to restore and enhance environmental quality.”⁴ As such, they provide decision makers with information about the potential environmental effects of a proposed project. ER documents are also used by the public to help ensure meaningful input into the decision-making process.

There are generally three types of analysis documents prepared through environmental review: an Environmental Assessment Worksheet (EAW), an Environmental Impact Statement (EIS), and/or an Alternative Urban Areawide Review (AUAR).

Advisory panel: purpose, process, and discussion topics

Panel purpose

The EQB has statutory authority to convene advisory panels to provide recommendations and guidance for program improvement.⁵ As part of its underlying authority, and to implement a 2015 session law,⁶ the EQB initiated an ER mandatory categories rulemaking in 2016. Many of the comments received during this process addressed larger policy questions that fell outside of the scope of the rulemaking process, including human health impacts, climate change considerations, alternative review, and environmental justice.

In response, the EQB convened “an advisory panel charged with modernizing and improving the effectiveness and efficiency of the ER program.”⁷ The purpose of the panel was “to review the ER program, identify areas of

³ Minnesota Rules, part 4410.0300, subp.4.

⁴ Minnesota Rules, part 4410.0300, subp.3.

⁵ Minnesota Statutes, section 116D.03, subd. 2.

⁶ Minnesota Session Law, 2015, 1st Special Session, chapter 4, article 3, section 2, subdivision 5: “\$500,000 the first year from the general fund is a onetime appropriation to the Environmental Quality Board for activities to streamline the environmental review process.”

⁷ From the EQB’s Advisory Panel Charter.

concern, and propose changes to modernize the program.”⁸ The panel’s charter further established that the panel’s activities and recommendations were to be documented in a report.

Specifically, the advisory panel had the following objectives:

1. Provide suggestions for modernizing and improving the effectiveness and efficiency of the ER program.
2. Review issue-focused suggestions from the public and stakeholders, and guide the EQB in larger policy questions and shifts.
3. Participate in a forum where members with disparate worldviews are able to arrive at solutions for the benefit of Minnesota.

Panel process and facilitation

Interested individuals submitted application letters to the EQB. Fifteen individuals were selected, representing citizens, environmental organizations, industry, project proposers, ER practitioners (state agency and local government staff responsible for conducting ER assessments), and consultants, who often act as technical experts in preparing ER documents. A list of panel members can be found in Appendix A. The panel reflected a wide range of perspectives, although the EQB recognized that some voices were not at the table. Meetings were open to the public and opportunities were provided for public comment and panel members indicated the public comments informed and impacted their discussions and recommendations. However, there is a large, unmet demand for broader, ongoing participation in this discussion.

The panel was comprised of people with different, sometimes opposing, points of view brought together with the intent to provide a more holistic view of the issues and challenges facing the current ER process. The EQB’s goal was to explore where consensus and compromise could be identified among ER stakeholders, as well as to better understand the barriers when consensus was not possible. While people with similar views might more easily reach consensus, a collaboration among stakeholders with opposing views can lead to recommendations that address all potential concerns and can facilitate implementation of such recommendations.⁹

The EQB retained Management Analysis and Development (MAD) of Minnesota Management and Budget to provide independent consulting on the design, facilitation, and documentation of the panel process. With input from MAD consultants, EQB staff designed monthly meeting agendas and objectives. During each panel meeting, MAD consultants facilitated panel discussions and provided panel members the opportunity to share their views on the monthly discussion topic and questions posed in the meeting agendas. The objective of each meeting was to explore similarities and differences in panel members’ perspectives, document consensus recommendations, and note divergent or dissenting views. After each meeting, EQB staff summarized the panel recommendations and divergent views, and reported these back to the panel for further revision. The goal was to have every panel member’s voice reflected in consensus recommendations or, if no consensus could be reached, report the various opinions of panel members.

⁸ Ibid.

⁹ For more information on the process of developing consensus, see Hartnett, Tim. The Basics of Consensus Decision-Making. <https://www.consensusdecisionmaking.org/#TheBasics>, accessed July 17, 2018.

The full panel met monthly over the course of one year (February 2017 to February 2018), with two workgroups meeting in March and June 2018. The full panel's last meeting took place in August 2018. Each panel meeting was about three hours long and was held at the Minnesota Pollution Control Agency in Saint Paul, with the exception of the August 2017 meeting which was held in Duluth. Panel meetings were open to the public and each meeting included a public comment period, typically about 15 to 30 minutes toward the end of the meeting. The EQB documented the panel process on its website, where it posted proposed meeting dates, meeting agendas, minutes, and supporting documents.¹⁰

Discussion topics

Based on the advice of the panel, the following schedule of topics was established for each month's panel discussion:

1. Climate change considerations, including greenhouse gas calculations (April and May 2017).
2. Mandatory category rulemaking (June 2017).
3. Relationship between approval processes (permitting and planning) and environmental review (July 2017).
4. Health impact (August 2017).
5. Meaningful engagement in the ER process (September 2017).
6. Flexibility and alternatives to the ER process (November and December 2017).
7. Engagement, education, and outreach (January 2018).

The first two meetings in February and March 2017 were used to establish panel ground rules, explore panel members' visions of success, and solicit feedback on discussion topics. The October 2017 and February 2018 meetings were used to vet draft recommendations with the panel. During the final panel meeting in August 2018, the panel reviewed and finalized the report.

To build on the progress made by the panel, some panel member volunteers and EQB staff met to augment the panel agenda. Two workgroups were formed on climate change considerations and streamlining and alternative review to further refine panel recommendations. These workgroups met in March and June 2018. EQB staff also reached out to panel members in between meetings to solicit feedback on draft recommendations and future panel meetings.

Panel recommendations and considerations by topic

Below is a summary of recommendations and considerations that the panel discussed by topic. The recommendations generally reflect the views of a majority of panel members, although the makeup of the majority varies from topic to topic.¹¹ The panel did not reach consensus on a complete set of recommendations¹² nor does the report present every recommendation the panel discussed. Each section of the

¹⁰ See EQB's website for links to these materials and a list of meeting details: <https://www.eqb.state.mn.us/content/environmental-review-advisory-panel>.

¹¹ The panel did not take formal votes on individual recommendations.

¹² Consensus is defined here as a proposed solution or recommendation that is acceptable to all and that everyone can live with even if it is not necessarily their preferred option.

report covers these recommendations and considerations in more detail, including alternative views. Sections also detail topics or questions that might need further discussion.

Climate change considerations, including greenhouse gas calculations

Problem statement: There isn't a consistent approach for assessing climate change-related impacts in the ER process.

Panel recommendations:

1. To support RGUs in the quantification of their GHG emissions in metric tons of carbon dioxide equivalent for all mandatory categories, the EQB should develop and disseminate guidance and tools, including a consistent and simple calculation method.
2. All EAWs should provide a narrative discussion of the project's climate adaptation planning and emission mitigation opportunities.¹³
3. Additional stakeholder engagement should take place before any recommendations are implemented.

The panel had considerable discussion as to whether recommendations #1 and #2 should be applied to all mandatory categories, all types of RGUs (state and local), and all project types as well as projects with different levels of significance.

Mandatory category rulemaking

Problem statement: Some mandatory categories and thresholds may be confusing and not align with recent program updates.

Panel discussion included the following considerations:

1. Broaden the scope of categories that were identified in the proposed 2017 rulemaking to include panel recommendations for specific categories (see page 17).
2. Identify all categories that have thresholds for applicability and affirm with RGUs with permitting authority if those thresholds are still appropriate; make changes if needed.
3. Evaluate and eliminate some existing categories, if those project types no longer have the potential for significant environmental effects.
4. Ensure mandatory categories are easily understood and the thresholds are relevant.

¹³ Question #16 on the current EAW form includes the following on emission mitigation: "Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and *any greenhouse gases*. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. *Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.*" (emphasis added).

Streamlining the process, flexibility, and alternatives

Problem statements:

- The intersection between federal, state and local permitting requirements can sometimes result in redundancies that needlessly slow the process.
- The current ER process might not allow enough flexibility when potential environmental effects are evaluated under multiple regulatory processes.

Panel recommendations:

1. The EQB should review and update as needed, existing guidance and rules relative to developing a scoped EAW.
2. The EQB should consider a pilot for a new process for an application for exception to an EAW when an EAW is mandatory pursuant to Minnesota Rules 4410.1000.
3. Instead of an “expedited” process, a new process for an “application for exception” should be created.¹⁴
 - The process would be similar to the petition process, except that it would be initiated by a project proposer for an exception.
 - A project proposer could submit an application, with sufficient information that an RGU would be able to use the criteria in Minnesota Rules 4410.1700 to decide whether an EAW must be prepared because the project may have has the potential for significant environmental effects.

Other workgroup considerations for developing an application for exception process included:

- The ability of the public to file an “objection” to the decision, and appeal directly to the EQB.
- Using similar criteria for the decision as the petition process found in Minnesota Rules 4410.1100.

Health impact

Problem statement: There isn’t a consistent approach for assessing all aspects of health in the ER process.

Panel discussion:

The panel was not able to reach agreement on recommendations around health impact but discussed the following topics and potential options:

- Panel members disagreed to what extent health is currently incorporated into environmental review. Some panel members believe health is incorporated through air, noise, and water standards, whereas other panel members noted that health equity or community-wide health impacts are currently not (consistently) addressed in the ER process.
- Panel members discussed how to define health in environmental review but could not reach agreement.
- The panel discussed Health Impact Assessments (HIAs) as a tool to augment environmental review in certain situations.

¹⁴ The panel discussed possible draft rule language for such an exception, which can be found in Appendix B.

- The panel agreed that the EQB should provide more guidance on how to incorporate human health impacts into environmental review. Moreover, this guidance should provide a variety of options, including but not limited to how to complete the EAW form with greater human health impacts considered in each question; using EAWs as a screening tool for an HIA; including HIAs in EISs—particularly in scoping of the EIS and any other method that could better integrate a human health perspective into ER.
- A number of panel members commented on how to gather additional stakeholder input on this topic, suggesting such opportunities for additional input could address some of the questions around health.

Meaningful engagement in the ER process

Problem statement: Competing needs and different levels of understanding between project proposers, RGUs, and the public can result in ineffective public engagement in the ER process.

Panel recommendations:

1. The EQB should more actively recruit tribal representatives on future panels as the panel observed a lack of representation of tribal voices in the ER process.
2. The ER program should intentionally recruit and engage diverse audiences, with particular emphasis on people who are traditionally underrepresented and underserved.
3. Recommend RGUs to use accepted best practices for public engagement that are appropriate for their project needs.
 - The EQB should continually identify, document, and disseminate define best practices through its website; trainings or workshops for RGUs, project proposers, and consultants; and supporting documents.
4. Encourage RGUs to bring the public into project discussions early in the process and provide guidance for initiating conversations with the public.
5. Add a question on the EAW form that asks project proposers and RGUs to describe the public engagement process.
 - The form should also specify opportunities for public participation in other approval processes.
6. A concise summary in plain language should be provided at the beginning of the ER document.

Education and outreach

Problem statement: Project proposers, RGUs, and the public need more information and training about the ER process, how environmental review relates to other regulatory processes, and best practices for public engagement.

Panel recommendations:

1. The EQB should develop best practices around notification policy, including tribal notification.
2. EQB should facilitate technical support from state experts for topic areas outside of their permitting authority.

3. The EQB should build capacity among RGUs, project proposers, and consultants to advance effective public engagement.
 - The EQB should continuously identify, document, and disseminate best practices through its website; trainings for RGUs, project proposers, and consultants; workshops for sharing best practices among practitioners; and supporting documents.
4. Provide training for local RGUs to ensure consistent approaches for implementing Minnesota Rules 4410.
5. Convene a practitioners group of RGUs, specialized consultants, and other interested parties for recurring meetings to increase information sharing and identification of new and emerging issues.

The following sections document the panel discussions and recommendations by topic, including dissenting views, additional work needed, and next steps.

Climate change considerations, including greenhouse gas calculations

During the April and May 2017 meetings, the panel discussed the use of greenhouse gas (GHG) calculations and climate change analysis in the ER process. The panel also discussed the use of GHG calculations as a threshold for the EAW Air Pollution category. Specifically, the panel discussed the following questions:

- What does a GHG calculation tell us?
- What does a climate change analysis tell us?
- How does that information fulfill MEPA's purpose?
- What are the challenges to doing GHG calculations?
- What are the challenges to doing a climate change analysis?
- How does this group define a climate change analysis in environmental review?
- At a minimum, what should be considered in a climate change analysis?
- Which project types/EAW and EIS categories should complete a GHG calculation?
- Which project types/EAW and EIS categories should complete a broader climate change analysis?

Problem statement

The panel agreed upon the following problem statement:

There isn't a consistent approach for assessing climate change-related impacts in the environmental review process.¹⁵

Panel recommendations

Based on initial panel discussions during the April and May 2017 meetings, and additional work by the workgroup on climate change, the following recommendations emerged:

1. To support RGUs in the quantification of their GHG emissions in metric tons of carbon dioxide equivalent for all mandatory categories, the EQB should develop and disseminate guidance and tools, including a consistent and simple calculation method.
2. All EAWs should provide a narrative discussion of the project's climate adaptation planning and emission mitigation opportunities.¹⁶

¹⁵ During the March 2018 meeting of the workgroup on climate change, panel members discussed whether this was the appropriate problem statement, with one member arguing it should also reference the role of environmental review in providing solutions to the problem. Another member disagreed, arguing the role of environmental review is not to solve problems but to assess and gather information. No alternative problem statements were offered.

¹⁶ Question #16 on the current EAW form includes the following on emission mitigation: "Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources

3. Additional stakeholder engagement should take place before any recommendations are implemented.

The panel had considerable discussion as to whether recommendations #1 and #2 should be applied to all mandatory categories, all types of RGUs (state and local), and all project types as well as projects with different levels of significance.

The workgroup on climate change offered the following additional considerations:

- There is value in requiring projects to provide climate impact information in an EAW.
- No new mandatory category is needed; all existing mandatory categories should be required to provide the same information, using a consistent method.
 - Consider a *de minimis* threshold for requiring climate impact analyses, rather than making any mandatory category “optional.”
- Some type of adaptation assessment should be required, but more work with stakeholders and technical experts is needed for developing the specific approach.
- The following issues should be further evaluated by technical experts:
 1. How will the analyses be done?
 2. What will the analyses be used for?
 - Consider how the analyses will be relevant and provide context (a point of reference).
 - Consider legal implications to RGUs for what type of requirements are implemented.
 3. Consider how to balance the burden of doing analysis with benefit.
 4. Analyses should include assessment methods for agriculture and land conversion.

The EAW Air Pollution category

During the May 2017 meeting, the panel discussed the EAW Air Pollution category, which uses GHGs as a threshold. The full panel agreed that additional evaluation is needed on whether GHG emissions should be a stand-alone mandatory category threshold. Most panel members also agreed that some form of the EAW Air Pollution category should remain in rule.

There was no agreement, however, on changes to the threshold. A subset of panel members thinks the threshold should be lowered to 25,000 tons per year of GHG to align it with federal reporting requirements. Another subset wants the EQB to gather more data before changing the threshold. A final subset believes there should be no stand-alone GHG mandatory threshold due to rescission of the GHG Tailoring Rule, which served as the basis for EQB adopting the threshold and that the EQB should eliminate the EAW Air Pollution category.

The panel further discussed the connection between federal permitting and environmental review, recognizing the difference between the two processes and that the air pollution EAW category should not be connected to a federal air permit.

such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and *any greenhouse gases*. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project’s effect on air quality and the results of that assessment. *Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.*” (emphasis added).

Additional perspectives

Panel members shared the following additional feedback and dissenting views:

- The GHG and climate change assessment methods should be easy to evaluate with limited GHG expertise. Assessments also need to be easy to compute and not require consulting experts.
- Calculation methods and results should be meaningful and help inform decision makers.
- Potential climate-related impacts should be easily understood by the public. However, the panel offered varied opinions about what would be done with this information. Some panel members expressed large concern about how this would be mitigated and how it would impact significance.
- The EQB should consider how to include an assessment of the social cost of carbon for EIS analyses.
- Environmental review should allow for the tracking of cumulative impacts of projects on climate change.
- The EQB should consider a generic EIS for regenerative agriculture alternatives.
- EQB technical experts should review more scientific literature to provide a more realistic, factual basis on which to determine an appropriate threshold for mandatory EAWs and EISs.
- Current science should inform mitigation and restoration efforts.

Additional work needed

The panel identified the following items that need additional work:

- More information is needed for how offsets should be used.
- More work should be done to determine what data is available/needed for assessing cumulative impacts.

Mandatory categories

During the June 2017 meeting, the panel discussed a number of mandatory categories for environmental review. Before the meeting took place, panel members filled out a survey sent out by EQB staff to collect feedback on the current mandatory categories. Based on the survey results (see Appendix C), the panel discussed the following mandatory categories:

- Minnesota Rules 4410.4300, subp.2 and 4410.4400, subp.2 – Nuclear fuels (EAW and EIS).
- Minnesota Rules 4410.4300, subp.11 – Metallic mineral mining and processing (EAW).
- Minnesota Rules 4410.4300, subp.12 – Nonmetallic mineral mining (EAW).
- Minnesota Rules 4410.4300, subp. 15 – Air Pollution (EAW).
- Minnesota Rules 4410.4300, subp.19 and 4410.4400, subp.14 – Residential development (EAW and EIS).
- Minnesota Rules 4410.4300, subp.19a and 4410.4400, subp.14a – Residential development in shoreland outside Twin Cities (EAW and EIS).
- Minnesota Rules 4410.4300, subp.20 – Resorts, campgrounds, and RV parks in shoreland (EAW).
- Minnesota Rules 4410.4300, subp.22 – Highway projects (EAW).
- Minnesota Rules 4410.4300, subp.24 – Water appropriations and impoundments (EAW).
- Minnesota Rules 4410.4300, subp.19 – Animal feedlots (EAW).
- Minnesota Rules 4410.4300, subp.33 – Communication towers (EAW).
- Minnesota Rules 4410.4300, subp.36a – Land conversions in shoreland (EAW).

Other themes that emerged from the survey results included:

- Whether the ER program be applied broadly or narrowly to capture many or few projects, including whether to:
 - Exclude environmental improvement projects from environmental review.
 - Have fewer mandatory categories and more RGU discretion to order EAWs or AUARs.
 - Decide if natural resources (such as wetlands, natural areas) and historical properties remain discrete categories just like project-type categories (such as nuclear fuels or residential developments).
- Clarification of the role of science when setting mandatory category thresholds.
- Clarification of the relationship between permitting and environmental review.

Problem statement

The panel agreed upon the following problem statement:

Some mandatory categories and thresholds may be confusing and not align with recent program updates.

Panel recommendation and discussion

The panel discussed the following mandatory categories and recommends EQB staff follows up with additional work on these categories:¹⁷

- Minnesota Rules 4410.4300, subp.11 – Metallic mineral mining and processing (EAW)
- Minnesota Rules 4410.4300, subp.12 – Nonmetallic mineral mining (EAW)
- Minnesota Rules 4410.4300, subp.19 and 4410.4400, subp.14 – Residential development (EAW and EIS)
- Minnesota Rules 4410.4300, subp.24 – Water appropriations and impoundments (EAW)

The panel further discussed the following considerations:

1. Identify all categories that have thresholds for applicability and affirm with RGUs with permitting authority if those thresholds are still appropriate; make changes if needed.
2. Evaluate and eliminate some existing categories, if those project types no longer have the potential for significant environmental effects.
3. Ensure mandatory categories are easily understood and the thresholds are relevant.

The panel affirmed that while more evaluation of mandatory categories and thresholds is needed, panel members varied in the level of technical expertise and there is a need for RGUs with expertise in mandatory categories to be part of any potential revisions.

Additional work needed

- The EQB will need to work with applicable RGUs for newly recommended categories to affirm the need and recommendations for additional mandatory category changes.
- Additional evaluation by EQB and MPCA is needed to determine if GHG emissions should remain a stand-alone mandatory ER category and if the GHG threshold should be amended.

¹⁷ Some panel members recognized they did not have the technical expertise to evaluate the mandatory categories.

Streamlining the process, flexibility, and alternatives

During the November and December 2017 meetings, the panel discussed approaches to streamlining the ER process, flexibility, and alternatives. Specifically, the panel discussed the following ideas for additional flexibility and alternatives to the ER process:

1. Allow RGUs and project proposers to scope what will be included in the EAW.
2. Allow other state processes, such as permit requirements and/or comprehensive plans, to substitute for, or (partially) satisfy, portions of the ER process.
3. Create “off-ramps” and “exclusions” for RGUs to use at their discretion.
4. Allow for a variance process or exemption petition.
5. Create an additional process—a hybrid between an EAW and an EIS.
6. Alternative public engagement process that could substitute for the current public notice requirements.

Problem statement

The panel agreed upon the following problem statements:

The intersection between federal, state, and local permitting requirements can sometimes result in redundancies that needlessly slow the process.

The current ER process might not allow enough flexibility when potential environmental effects are evaluated under multiple regulatory processes.

Panel discussion and potential recommendations

While most panel members recognized the potential need for an alternative process, there was ongoing disagreement over how an alternative could be structured. There was also some lack of clarity and awareness about current alternatives allowed for in rule, and how information can be incorporated by reference.

Based on initial panel discussions during the November and December 2017 meetings, and additional work by the workgroup on Streamlining, Flexibility, and Alternatives, the panel offered the following recommendations:

1. The EQB should review, and update as needed, existing guidance and rules relative to developing a scoped EAW.
2. The EQB should consider a pilot for a new process for an application for exception to an EAW when an EAW is mandatory pursuant to Minnesota Rules 4410.1000.
3. Instead of an “expedited” process, a new process for an “application for exception” should be created.
 - The process would be similar to the petition process, except that it would be initiated by a project proposer for an exemption.

- A project proposer could submit an application, with sufficient information that an RGU would be able to use the criteria in Minnesota Rules 4410.1700 to decide whether an EAW must be prepared because the project may have has the potential for significant environmental effects.

RGU Discretion to Except Project from Mandatory EAW

During the final panel meeting in August 2018, the panel discussed potential rule language drafted by a subset of panel members for a process to allow RGU discretion to except a project from a mandatory EAW. During the discussion of this draft rule language, the panel members strongly disagreed on a number of items, including:

- Whether an exception process is needed. Some panel members raised the question of what historical data exist to support the need for an exception process.
- What projects would be good candidates for an exception.
- How an objection should be considered, such as the number of people needed to sign onto an objection and the level of substantiation and materiality of the objection.
- Whether this should be a pilot program or not.
- The terminology used in the rule language, in particular the word “exception” versus “exemption” and the application of each term.

The panel did not come to an agreement on draft rule language; the version that was discussed in the final meeting (annotated to show disagreement) can be found in Appendix B.

Additional perspectives

Some panel members expressed that they do not agree with the premise of the topic of alternative review.

Workgroup considerations for developing an application for exemption process included:

- The ability of the public to file an “objection” to the decision, and appeal directly to the EQB.
- Using similar criteria for the decision as the petition process found in Minnesota Rules 4410.1100.

The workgroup also discussed a number of options to introduce more flexibility into the ER process, including:

1. A pilot for exemption.
2. A pilot for a simplified EAW form.
3. EQB guidance on how to complete an EAW minimally, with more outreach to local RGUs.
4. A check list to determine project eligibility for an alternative process.

The proposed alternative form would only apply to proposed projects that:

- Can demonstrate that they would not meet the criteria for requiring an EAW (Minnesota Rules 4410.1700 subp.7);
- Are non-controversial; and
- Have already undergone a sufficient public review process.

The framework for the proposed alternative review process should consider:

- Timeliness: If the alternative process takes as long as the EAW process, then this approach have no value.
- Scope of review: The evaluation should be comprehensive enough to ensure that it can demonstrate the potential for significance.
- The opportunity for the public to participate in the approval decision.

Health impact

During the August 2017 meeting, the panel discussed human health considerations in environmental review. As part of the panel meeting, a representative from the Minnesota Department of Health provided overviews of current health and environmental regulation and the use of Health Impact Assessments (HIAs). Following this presentation, representatives from the Minnesota Academy of Family Physicians shared with the panel their request to the EQB to include HIAs for all projects undergoing environmental review.

The panel then discussed the following questions:

- From the perspective of each panel member, to what extent are human health considerations currently incorporated into environmental review?
- How should health be defined in the context of environmental review?
- What value does a health impact assessment have in environmental review?
- What do we not know?
- What else does the EQB need to know to move forward?

Problem statement

The panel agreed upon the following problem statement:

There isn't a consistent approach for assessing all aspects of health in the environmental review process.

Panel discussion

The panel was not able to reach agreement on recommendations around health impact but discussed a number of topics and potential options for the EQB.

Panel members disagreed to what extent health is currently incorporated into environmental review. Some panel members believe health considerations are already conservatively protected through development of environmental criteria standards (air, noise, and water standards), permitting and regulatory requirements, and existing mandatory category risk assessment tools. Other panel members noted that health equity or community-wide health impacts are currently not (consistently) addressed in the environmental review process. Panel members discussed how to define health in environmental review but could not reach agreement.

Each panel member also provided an individual recommendation to the EQB at the end of the meeting. MAD summarized the panel discussion and panel member recommendations as follows:

The panel did not recommend one method for incorporating human health impact into environmental review. However, there was consensus among panel members that more guidance on how to incorporate certain human health considerations into environmental review should be provided. Panel members provided a variety of options for the guidance, including but not limited to: how to complete the EAW form with greater consideration for human health impacts for each question; using EAWs as a screening tool for HIA; and including HIAs in EISs—particularly in scoping of the EIS and any other method that could better integrate a human health

perspective into environmental review. Some panel members, however, expressed opposition to the idea of including HIAs in EISs. A number of panel members also commented on how to get stakeholder input on this topic, suggesting that better opportunities for input in the current process would address some of the questions around health.

The topic was revisited during the February 2018 meeting with further discussion around the following considerations. A minority of panel members agreed these should move forward.

- Require projects that have the potential for health impacts to follow the same protocol for assessing those impacts and reporting them on the EAW form.
- Develop a consistent approach for including an assessment of social and other applicable determinants of health.
- Technical assessment requirements should include sufficient guidance, so that RGUs will be able to perform the analyses and the public will understand the potential environmental effects.

Panel members who disagreed with these considerations provided the following feedback:

- Panel members noted that MDH currently does not have a recommendation on whether a Health Impact Assessment be required for environmental review.
- Previous discussions on health in environmental review have had no effect on decision makers.
- A discussion is needed about how incorporation of health considerations would be done in the EAW.
- Health is addressed in many other ways in the ER process—adding health to the EAW will not provide new information to move forward.
- Health considerations are redundant—they are already the basis of environmental review.
- Key (of the ER process) is scoping. EIS scoping already allows for inclusion of HIA components if determined to be appropriate and beneficial.
- The ER program should not dictate the process that an RGU must use within an EAW or EIS to assess or evaluate specific potential environmental (or health) impact.

The panel then suggested that the EQB engage with stakeholders beyond MDH for a broader set of views and methods and with a deeper understanding of how environmental review works.

Additional work needed

- The EQB may need to conduct training and outreach for RGUs before recommendations around health impact are implemented.
- MDH should provide recommendations on which mandatory categories and projects should consider health impacts.

Meaningful public engagement, education, and outreach

During the September 2017 and January 2018 meetings, the panel discussed meaningful public engagement, education, and outreach.

The panel addressed the following questions on meaningful public engagement:

- To what extent does the ER process enable conditions for meaningful engagement?
 - Why is environmental review not already achieving meaningful engagement?
- What needs to change and how does the ER program make change?

The panel addressed the following questions on education and outreach:

- Education/outreach documents are primarily developed for RGUs—should this be expanded?
- How should the EQB help others better understand the process?
- Is there a gap in knowledge for:
 - RGUs?
 - Public?
 - Project proposers?
- Who should lead education/outreach efforts for the public, project proposers?
 - EQB or locally led?
 - How?
- What changes do you recommend?
- What is needed for RGUs that only prepare EAW/EIS documents infrequently?

Problem statements

The panel agreed upon the following problem statements:

Competing needs, and different levels of understanding, between project proposers, RGUs, and the public can result in ineffective public engagement in the ER process.

Project proposers, RGUs, and the public need more information and training about the ER process, how environmental relates to other regulatory processes, and best practices for public engagement.

Panel recommendations

Meaningful public engagement

The panel agreed upon the following recommendations for meaningful public engagement:

1. The EQB should more actively recruit tribal representatives on future panels as the panel observed a lack of representation of tribal voices in the ER process.
2. The ER program should intentionally recruit and engage diverse audiences, with particular emphasis on people who are traditionally underrepresented and underserved.
3. Recommend RGUs to use accepted best practices for public engagement that are appropriate for their project needs.
 - The EQB should continually identify, document, and disseminate define best practices through its website; trainings or workshops for RGUs, project proposers, and consultants; and supporting documents.
4. Encourage RGUs to bring the public into project discussions early in the process and provide guidance for initiating conversations with the public.
5. Add a question on the EAW form that asks project proposers and RGUs to describe the public engagement process.
 - The form should also specify opportunities for public participation in other approval processes.
6. A concise summary in plain language should be provided at the beginning of the ER document.

Education and outreach

The panel agreed upon the following recommendations for education and outreach:

1. The EQB should develop best practices around notification policy, including tribal notification.
2. EQB should facilitate technical support from state experts for topic areas outside of their permitting authority.
3. The EQB should build capacity among RGUs, project proposers, and consultants to advance effective public engagement.
 - The EQB should continuously identify, document, and disseminate best practices through its website; trainings for RGUs, project proposers, and consultants; workshops for sharing best practices among practitioners; and supporting documents.
4. Provide training for local RGUs to ensure consistent approaches for implementing Minnesota Rules 4410.
5. Convene a practitioners group of RGUs, specialized consultants, and other interested parties for recurring meetings to increase information sharing and identification of new and emerging issues.

Additional perspectives

Panel members shared the following additional feedback and dissenting views:

- Engaging diverse communities is important.
 - The EQB should reflect on the advisory panel process.
 - There is a need to make diverse communities feel comfortable and empowered to speak their minds.
 - The ER program should carefully consider such engagement and be intentional.
 - The ER program should go where other people and groups are.
- The EQB needs to consider ways to more intentionally and proactively include tribal governments.
- The EQB needs to consider cultural variation in crafting engagement and communications strategies.
- The EQB should consider development of material that is Minnesota-specific versus using other states' materials.
- The EQB could organize the sharing of best practices.
- The current audience for education and outreach are RGUs; the public also needs to be targeted.
- The EQB should define what “significant” impact means.
- A discussion of “cumulative impacts” should be included in outreach and education.
 - Some panel members noted that this might be a bigger discussion topic than education and outreach.
- The EQB could consider developing an RGU certification process that is required in order to prepare environmental documents. This would likely increase consistency and quality of environmental documents but could also affect the effort and costs of preparing environmental documents.

Additional work needed

Meaningful public engagement

- Research, develop, and disseminate guidance for best practices for public engagement.
- Need to reach out to identify ways to ensure public trust in the ER process.

Education and outreach

- Reach out to RGUs (state and local) to identify tools and training needs and provide updated information on environmental review to encourage identification of new and emerging issues.
- The EQB needs to better understand the additional needs for guidance and tools for implementing Minnesota Rules 4410.

Appendix A: Advisory panel membership

Full panel membership

- Jason Aagenes, Cleveland-Cliffs, Inc.
- James Atkinson, ALLETE, Inc.
- Randall Doneen, Minnesota Department of Natural Resources
- Josh Fitzpatrick, Federal Aviation Administration
- Kathryn Hoffman, Minnesota Center for Environmental Advocacy (alternate: Kevin Reuther)
- Peder Larson, Larkin Hoffman Attorneys
- Willis Mattison, Citizen
- Louise Miltich, Minnesota Department of Commerce
- Andi Moffatt, WSB & Associates, Inc.
- Timothy Nelson, Cook County
- Michele Ross, Sambatek
- Halston Sleets, City of Minneapolis
- Lucas Sjostrom, Minnesota Milk Producers
- Carissa Slotterback, University of Minnesota
- David Zoll, Lockridge Grindal Nauen P.L.L.P.

Workgroup membership

Climate change

- Jason Aagenes
- Kathryn Hoffman
- Willis Mattison
- Louise Miltich
- Tim Nelson

Streamlining the process, flexibility, and alternatives

- | | |
|-------------------|-----------------------|
| • Jason Aagenes | • Tim Nelson |
| • Randall Doneen | • Kevin Reuther |
| • Peder Larson | • Lucas Sjostrom |
| • Willis Mattison | • Carissa Slotterback |
| • Louise Miltich | • David Zoll |

Appendix B: Possible draft rule language

“RGU Discretion to Except Project from Mandatory EAW”

Panel discussion about this draft rule language

The panel did not agree on a final version of possible draft rule language for an exception process. Some panel members questioned the need for an exception process in the first place and believe EQB should provide more information and evidence of the problem that the exception process is trying to address. Other panel members recommended that any exception process first be a pilot program. Others strongly supported the implementation of an exception process as described in the draft rule language below, with slight changes.

Other unresolved issues include the breadth of issues the RGU must address to support an exception, whether the proposed exception would be applicable to all or only some mandatory EAW categories, what terminology to use (“exemption” or “exception”), and how comments or objections to the exception impact the RGU’s proposal to not prepare an EAW for a project.

Possible draft rule language

4410.4300 MANDATORY EAW CATEGORIES.

Subpart 1. Threshold test.

A. An EAW must be prepared for projects that meet or exceed the threshold of any of subparts 2 to 37, unless the project meets or exceeds any thresholds of part 4410.4400, in which case an EIS must be prepared.

If the proposed project is an expansion or additional stage of an existing project, the cumulative total of the proposed project and any existing stages or components of the existing project must be included when determining if a threshold is met or exceeded if construction was begun within three years before the date of application for a permit or approval from a governmental unit for the expansion or additional stage but after April 21, 1997, except that any existing stage or component that was reviewed under a previously completed EAW or EIS need not be included.

Multiple projects and multiple stages of a single project that are connected actions or phased actions must be considered in total when comparing the project or projects to the thresholds of this part and part 4410.4400.

Subpart 2. RGU determination of EAW Mandatory Category Exception.

- A. As provided in part 4410.1000, an EAW serves primarily to aid in the determination of whether an EIS is needed for a proposed project and serve as a basis to begin the scoping process for an EIS. An RGU may determine that an EAW would not serve those purposes for a project and except the project from a

mandatory EAW if it finds that there is no potential for significant environmental effects arising from the project despite the project exceeding the threshold of any of subparts 2 to 37. Such a finding does not preclude preparation of a discretionary EAW pursuant to part 4410.1000 or ordering an EAW following a petition pursuant to part 4410.1000.

B. Decision document content.

The RGU must prepare a document supporting its decision to except a project from a mandatory EAW. The document must include:

1. identification including project name, project proposer, and project location;
2. procedural details including identification of the RGU, RGU contact person, and instructions for interested persons wishing to submit comments;
3. a brief description of the applicable mandatory category;
4. 4 description and location of the project, the purpose of the project, methods of construction, quantification of physical characteristics and impacts, project site description, and land use and physical features of the surrounding area;
5. known governmental approvals, reviews, or financing required, applied for, or anticipated and the status of any applications made, including permit conditions that may have been ordered or are being considered;
6. if the project will be carried out by a governmental unit, a brief explanation of the need for the project and an identification of benefits of the project;
7. an assessment of the compatibility of the project with government entity approved plans for the site;
8. a statement that the project does not have the potential for significant environmental effects despite the project exceeding a threshold of the applicable mandatory EAW category. The statement must include:
 - (a) a description of prior government actions that address the potential for significant environment effects arising from the project.
 - (b) a description of government approvals that address the potential for significant environment effects arising from the project including applicable permits for the project and public notice, public comment and public meeting opportunities related to any government approval; and,
 - (c) other information related to the nature and location of the project supporting the conclusion that the project does not have the potential for significant environment effects.

C. Publication and Notification of Proposed Decision to Except.

The RGU decision document described in subpart B. shall be published and distributed in the same manner required for publication and distribution of an EAW in subpart 4410.1500.

D. Comment and objection period.

1. A 30-day period for review and comment on the RGU decision document shall begin the day the availability notice is published in the EQB Monitor.
2. Written comments shall be submitted to the RGU during the 30-day review period. The comments shall address the accuracy and completeness of the material contained in the RGU decision document, potential impacts arising from the project characteristic that is the subject of the mandatory EAW threshold that may warrant further investigation before the project is commenced, and the need for an EAW on the proposed project due to the potential for significant environment effects arising from the project.
3. Written comments may object to the proposal to except a project from a mandatory EAW.
4. The RGU may hold one or more public meetings to gather comments on the RGU decision document if it determines that a meeting is necessary or useful. Reasonable public notice of the meetings shall be given prior to the meetings. All meetings shall be open to the public.

E. Final Decision on Exception from Mandatory EAW.

The RGU may except the project from a mandatory EAW if it determines based on the record before it that there is no potential for significant environmental effects arising from the project considering the standard and factors provided in part 4410.1700, subparts 6 & 7. The RGU shall maintain, either as a separate document or contained within the records of the RGU, a record, including specific findings of fact, of its decision on the need for an EAW.

F. Time limits.

The RGU has 30 days from the end of the comment period to decide whether to except the project from a mandatory EAW. If the decision must be made by a board, council, or other body which meets only on a periodic basis, the time period may be extended by the RGU for an additional 15 days.

G. Notice of decision.

Within five days of its decision the RGU shall notify the EQB staff of its decision. The EQB staff shall publish notice of the RGU's decision in the EQB Monitor.

H. Review.

Review of a final decision under this subpart by the RGU shall be available as provided in Minnesota Statutes Section 116D.04, subdivision 10.

Appendix C: Panel survey results mandatory categories

Survey results proposed changes to existing EAW and EIS Categories

The EQB Environmental Review Advisory Panel members suggested via a survey that 25 existing environmental assessment worksheet (EAW) and 7 existing environmental impact statement (EIS) categories change by either modifying the existing rule, eliminating the rule or raising and lowering the threshold. The proposed changes submitted via the survey are in the table below. Four new EAW categories were also proposed. The EQB Environmental Review staff assisted by facilitators sorted the survey data.

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
4410.4300, subp.2	Nuclear fuels (EAW)	Eliminate	Given the controversy that is associated with any nuclear fuel or nuclear waste project, they all should be subject to the mandatory EIS category.	Align with statutory changes
4410.4400, subp.2	Nuclear fuels (EIS)	Lower threshold	All nuclear fuel/waste projects should require an EIS given the controversy surrounding such projects. They are going end up with an EIS anyway.	Align with statutory changes
4410.4300, subp.3	Electric generating facilities (EAW)	Other	RGU should be PUC to allow more consistency of process across the state particularly as we continue to see growth in distributed generation in this 25-50 MW range and a high degree of variability of process across different LGU jurisdictions.	RGU change
4410.4300, subp.5	Fuel conversion facilities (EAW)	Eliminate	These facilities are heavily regulated. If an EAW is desired it can be ordered by the EQB in response to a petition or ordered by a government agency with permitting authority.	Align with statutory changes
4410.4300, subp.7	Pipelines (EAW)	Other	Mandatory EIS (4410 rules) for pipelines requiring certificate of need and/or route permit.	Align with statutory changes
4410.4400, subp.24	Pipelines (EIS)	Other	Require mandatory EIS for pipelines that require CN and/or route permit.	Align with statutory changes
4410.4300, subp.11	Metallic mineral mining and processing (EAW)	Eliminate	Mineral deposit evaluation isn't inherently concerning. If the size or location of the project causes concerns an EAW can be ordered. Setting a 320 acre threshold for expansion of stockpiles, tailings basins or mines is arbitrary. All are heavily regulated and an EAW can be ordered if desired. Similarly, the thresholds for an expansion are arbitrary. The facilities are heavily regulated and an EAW can be ordered if desired.	N/A
4410.4300, subp.11	Metallic mineral mining and processing (EAW)	Other	Subpart 11b currently requires a mandatory EAW for expansion of a stockpile, tailings basin or mine by 320 or more acres. Propose modifying the trigger to exclude in-pit tailings storage because it promotes beneficial reuse of already impacted land.	N/A
4410.4400, subp.8	Metallic mineral mining and processing (EIS)	Other	Delete (A.)	Deletion of part A

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
4410.4300, subp.12	Nonmetallic mineral mining (EAW)	Other	The "mean depth of ten feet" is confusing for RGU's. Would suggest going with a volume calculation that gets to the intent of this rule rather than a "mean depth".	N/A
4410.4300, subp.14	Industrial, commercial, and institutional facilities (EAW)	Eliminate	These projects are all subject to the requirements of local government comprehensive plans, zoning and permitting. An EAW can be ordered if desired.	Addition of units of measurement
4410.4300, subp.15	Air pollution (EAW)	Eliminate	No potential environmental impact is more strictly regulated than air emissions. That is particularly true of major facilities. The MPCA has sufficient authority to regulate these facilities to avoid the potential for significant environmental impacts. An EAW can be ordered if desired.	Deletion of part B
4410.4300, subp.15	Air pollution (EAW)	Lower threshold	25,000 Metric ton CO ₂ -e threshold for GHG emissions = mandatory EAW	Deletion of part B
4410.4300, subp.15	Air pollution (EAW)	Eliminate	The stand-alone air emission EAW trigger should be eliminated for certain classes of facilities that are already covered under mandatory EAW categories (6 classes). Certain facilities should not be subject to a stand-alone air emission increase mandatory EAW trigger. The justification for this request is based on the following: • these facilities already have industry-specific EAW triggers described in Minn. R. 4410.4300; • these facilities and projects are still be subject to an EAW for a host of other triggers; • these facilities are already subject to Part 70 air permits and all of the associated Clean Air Act requirements are designed to be protective of human health and the environment; • projects that result in air emission increases above applicable thresholds must already undergo rigorous air permitting amendments with public notice components; • projects that result in air emission increases above PSD thresholds are subject to Best Available Control Technology are already subject to federal NEPA environmental review requirements; • in previous EQB SONARs, MPCA stated it believes that the air emissions permitting program adequately addresses all major and minor concerns regarding air pollutants from new or expanding sources; and • in previous EQB SONARs, EQB stated there has been little or no relationship between air emission increases and other environmental issues for projects that triggered an EAW based solely on air emission increases.	Deletion of part B
4410.4300, subp.16	Hazardous waste (EAW)	Eliminate	Hazardous waste facilities are subject to sufficient MPCA authority to avoid the potential for significant environmental effects from these projects. An EAW can be ordered if desired.	Addition of definitions, units of measurement; align with permitting program
4410.4400, subp.12	Hazardous waste (EIS)	Eliminate	These projects are sufficiently regulated by the MPCA. An EIS can be ordered if desired.	Addition of definitions, units of measurement; align with permitting program

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
4410.4300, subp.17	Solid waste (EAW)	Eliminate	Solid waste facilities are subject to sufficient MPCA authority and local government zoning and permitting requirements to avoid the potential for significant environmental effects from these projects. An EAW can be ordered if desired.	Addition of unit of measurement; align with permitting program
4410.4400, subp.13	Solid waste (EIS)	Eliminate	These projects are sufficiently regulated by the MPCA. An EIS can be ordered if desired.	Addition of unit of measurement; align with permitting program
4410.4300, subp.18	Wastewater systems (EAW)	Eliminate	Wastewater facilities are subject to sufficient MPCA authority to avoid the potential for significant environmental effects from these projects. An EAW can be ordered if desired.	Language clarification for readability
4410.4300, subp.19	Residential development (EAW)	Other	The language for making the determination is over-complicated and should be simplified, and consideration should be given to simplify any contiguous lands determination.	N/A
4410.4400, subp.14	Residential development (EIS)	Other	The thresholds (A - D) are fine, the contiguous land portion in the first paragraph is not practical, and should be simplified or eliminated.	N/A
4410.4300, subp.19a	Residential development in shoreland outside of the seven-county Twin Cities metropolitan area (EAW)	Other	The first paragraph is too over-complicated for making the determination, consider simplifying the formula and eliminate the distinction between sensitive and non-sensitive shoreland.	N/A
4410.4400, subp.14a	Residential development in shoreland outside of the seven-county Twin Cities metropolitan area (EIS)	Eliminate	The language for making the determination is over-complicated. Allow the EAW to determine whether an EIS is needed, stick with the thresholds in Subp. 14 (A -D). Eliminate distinction between sensitive and non-sensitive shoreland.	N/A
4410.4300, subp.20	Campgrounds and RV parks	Eliminate	This category, like several others, seems unnecessary. If a particular project has the potential to cause significant adverse environmental impacts, a discretionary EAW can be ordered. Narrowing the list of mandatory categories would be a significant step toward streamlining the environmental review process.	N/A
4410.4300, subp.20	Resorts, campgrounds, and RV parks in	Eliminate	This category, like several others, seems unnecessary. If a particular project has the potential to cause significant adverse environmental impacts, a discretionary EAW can be ordered. Narrowing the	N/A

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
	shorelands (EAW)		list of mandatory categories would be a significant step toward streamlining the environmental review process.	
4410.4300, subp.20	Resorts, campgrounds, and RV parks in shorelands (EAW)	Other	Eliminate the distinction between sensitive and non-sensitive shoreland, all shoreland is sensitive. Eliminate the threshold of common open space.	N/A
4410.4400, subp.26	Resorts, campgrounds, and RV parks in shorelands (EIS)	Raise threshold	The 100 units threshold is too low, 200 is a more realistic number. The EAW will determine if there is a need for further review.	N/A
4410.4300, subp.22	Highway projects.	Other	I have wanted to have the MEPA and FHWA's rules coincide to streamline the process. However, FHWA and MnDOT are vague with triggers of: "Projects in this class are generally new construction, reconstruction projects adding lanes, possibly with any of the following: • Large amounts of R/W • Access modifications • Controversial environmental encroachments • More than minimal channel change. This path requires, at a minimum, offering an opportunity for a public hearing, and may require a public hearing."	Increase threshold
4410.4300, subp.24	Water appropriations and impoundments	Eliminate	Water appropriations are subject to sufficient DNR authority to avoid the potential for significant environmental effects from these projects. An EAW can be ordered if desired.	N/A
4410.4300, subp.24	Water appropriations and impoundments	Other	surface water for irrigation should be tied to Groundwater Management Areas - so it should say from a single source water or groundwater management area". Consider a more stringent threshold in these groundwater management areas.	N/A
4410.4300, subp.24	Water appropriations and impoundments	Raise threshold	Subpart 24a – suggest increasing the trigger for an EAW for water appropriations to higher than the current threshold of 30,000,000 gallons per month (~700gpm). Consider exemption for mining pit dewatering purposes.	N/A
4410.4300, subp.26	Stream diversion	Other	An EAW should not be required for projects that are implemented as the result of a regulatory requirements (e.g restoration of a stream which was required by the 404 permit) or other projects the purpose of which is to improve environmental conditions.	Addition of RGU; Exclusion for habitat improvement
4410.4300, subp.26	Stream diversion	Raise threshold	The linear foot requirement should be raised for projects that are proposing realignment to improve habitat conditions.	Addition of RGU; Exclusion for habitat improvement
4410.4300, subp.27	Wetland and public waters (EAW)	Other	Add DNR as additional RGU. Perhaps increase category to capture additional wetland areas	Addition of RGU; change for readability

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
4410.4300, subp.27	Wetland and public waters (EAW)	Eliminate	Wetland impacts are sufficiently regulated under WCA and Sections 404 and 401 of the Clean water act to avoid the potential for significant environmental effects. An EAW can be ordered if desired.	Addition of RGU; change for readability
4410.4400, subp.20	Wetland and public waters (EIS)	Eliminate	These projects are sufficiently regulated by the federal, state and local governments. An EIS can be ordered if desired.	Change to RGU
4410.4300, subp.19	Animal feedlots (EAW)	Raise threshold	In today's modern farms, profitable practices mesh with best environmental practices. Rather than animal units, simply checking a list of Best Management Practices plus monitoring as part of a permit for the largest farms would be a better use of everyone's time. The largest farms, due to new technologies, are often the best users of nutrients, not worst.	N/A
4410.4300, subp.19	Animal feedlots (EAW)	Other	Animal unit thresholds are arbitrary and should be based on actual quantifiable impacts.	N/A
4410.4300, subp.30	Natural areas (EAW)	Other	Delete state trail corridor	Deletion of state trail corridor – comment addressed
4410.4300, subp.31	Historical properties (EAW)	Other	See DNR recommendation on mandatory category rulemaking	Changes for readability – comment addressed
4410.4300, subp.31	Historical properties (EAW)	Eliminate	Because it makes no sense to require a complete EAW for these projects absent other environmental concerns.	Changes for readability
4410.4300, subp.32	Mixed residential and industrial-commercial projects (EAW)	Eliminate	This category, like several others, seems unnecessary. If a particular project has the potential to cause significant adverse environmental impacts, a discretionary EAW can be ordered. Narrowing the list of mandatory categories would be a significant step toward streamlining the environmental review process.	N/A
4410.4300, subp.33	Communication towers (EAW)	Raise threshold	Keep the category for sensitive areas (wild and scenic rivers, wilderness areas, etc.). It seems unnecessary for must other areas.	N/A
4410.4300, subp.34	Sports or entertainment facilities (EAW)	Other	This category, like several others, seems unnecessary. If a particular project has the potential to cause significant adverse environmental impacts, a discretionary EAW can be ordered. Narrowing the list of mandatory categories would be a significant step toward streamlining the environmental review process.	N/A
4410.4300, subp.36a	Land conversions in shoreland	Other	"Land Conversion" should be clearly defined, and consideration should be given to the local comprehensive plan	Exclusion for habitat improvement

Rule	Category	Action	Comment	Mand. Cat. Rulemaking Proposed Change
4410.4300, subp.36a	Land conversions in shoreland	Other	See DNR Rulemaking comments.	Exclusion for habitat improvement
4410.4300, subp.37	Recreational trails	Other	See DNR recommendation under EAW mandatory category rulemaking. Align and interpret session law.	Align with statutory changes

Survey results proposed new EAW categories

Category: Rail/Transit: Laying new track, perhaps 20 miles or longer.

Justification: I have previously found rail and transit have major environmental justice issues as well as wetland issues with proposed connected actions that lead to greater impact. A connected action may be the construction of a rail yard.

Should there be a corresponding EIS category? Please explain: Yes. Perhaps change the threshold category to 50 miles of track.

Category:

Highly Important Natural Resources - An EAW should be required for projects that impact or encroach on resources that is rare or unique, difficult or impossible to replace and particularly significant in terms of Minnesota's ecosystem or natural history. Specific definition of guidance would be needed to assist RGUs in identifying Highly Important Natural Resources

Justification:

Highly Important Natural Resources - These can be important areas that may or may not be identified in other categories and not specifically regulated under existing permitting programs.

Should there be a corresponding EIS category? Please explain: No. None.

Category:

Drainage in and to public waters - A mandatory EAW should be required for any drainage project under Minnesota Statutes 103E or 103D with a drainage area greater than two square miles as measured at the system outlet that would increase the two-year storm discharge by more than 10 percent within 500 feet of a public waters basin, watercourse, or wetland, the LGU shall be the RGU.

Justification:

Drainage Potential impacts include: downstream erosion, flooding, structure impacts (bridges, culverts, road banks), water quality. Most drainage projects don't require a WCA or public waters permit. The public waters permits, if needed, are mostly geared toward physical impacts resulting from the outlet, sediment removal, storage basins, etc.

Should there be a corresponding EIS category? Please explain: No. None.

Category:

Solar Farms - A mandatory category should be required for solar farms in excess of 3-MW, or convert land designated as prime agriculture through a comprehensive planning process.

Justification:

Solar Farms - The concern with solar farms is both the overall land area taken up, and the possible loss of prime agricultural land.

Should there be a corresponding EIS category? Please explain: Not sure. Should let the results of the EAW dictate whether an EIS is necessary.

Dave Frederickson, Commissioner and Chair
Will Seufert, Executive Director
Courtney Ahlers-Nelson, Planning Director-Environmental Review
Minnesota Environmental Quality Board
520 Lafayette Road
St. Paul, MN 55155

Thank you for your continuing review of the Minnesota Academy of Family Physicians (MAFP) 2016 petition to the Minnesota Environmental Quality Board (EQB) to amend Minnesota Rules Chapter 4410 to require that a Health Impact Assessment (HIA) be completed for all sulfide mining projects in Minnesota requiring an EAW or EIS. We also appreciate your directive to the newly formed Environmental Review Advisory Panel to review health impact assessment as part of its mission to review environmental rules.

We at the MAFP would like to provide you with an update on our activities. The MAFP is the largest medical specialty organization in Minnesota with over 3,000 physician, resident physician and medical student members. The MAFP House of Delegates (HOD) is the elected governing body of the MAFP and represents every geographic region in Minnesota. The HOD meets yearly to pass resolutions which then become MAFP policy. On April 19, 2017, the MAFP HOD met in Minneapolis, MN and passed the following resolution,

Be It Resolved, that the MAFP supports the completion of a Health Impact Assessment (HIA) for all projects proposed in Minnesota which require the completion of an environmental assessment worksheet (EAW) or an environmental impact statement (EIS) and will propose this to the MN EQB or the appropriate state authority; and

Be It Further Resolved, that the MAFP supports the requirement that all federal environmental impact statements be required to include a comprehensive, independently produced Health Impact Assessment. The MAFP will submit this to the AAFP for its consideration.

AAFP refers to the American Academy of Family Physicians.

This resolution came forth because of our meetings and discussions with you. We feel as you do that “health in all policies”, which is official state policy, should apply to all projects and not just to sulfide mining projects. We agree with the findings of the 2012 Minnesota Department of Health report to the EQB, “Incorporating Health and Climate Change into the Minnesota Environmental Worksheet”. It states: “Minnesota’s EAW already addresses some health and climate change issues, however, several health issues remain unaddressed or insufficiently addressed by the EAW...Incorporating consideration of human health and climate change impacts within the EAW could have significant positive effects on human health and climate change adaptation and mitigation in Minnesota.”

I am enclosing an article from the Minnesota Medical Association bi-monthly peer-reviewed journal, *Minnesota Medicine*, which appeared in the November/December 2016 issue. It reviews the health impacts of sulfide mining. It was authored by several of the MAFP physicians who presented before the EQB at its October 19, 2016 meeting.

We hope that you will incorporate this new resolution into your deliberations regarding the inclusion of HIA in future projects requiring an EAW or EIS. Please send this information to the Environmental Review Advisory Panel for its consideration. We would be happy to discuss this with you and the Environmental Review Advisory Panel at your earliest conveniences.

Sincerely,

A handwritten signature in black ink, reading "David K. Bucher". The signature is written in a cursive, flowing style with a large initial "D" and a prominent "K".

Dave Bucher, MD, FAAFP
MAFP President

Sulfide Mining and Human Health in Minnesota

BY EMILY ONELLO, MD, DEB ALLERT, MD, STEVE BAUER, MD, JOHN IPSEN, MD, PHD, MARGARET SARACINO, MD, KRIS WEGERSON, MD, DOUGLAS WENDLAND, MD, MPH, AND JENNIFER PEARSON, MD

Sulfide mining (specifically copper-nickel sulfide mining) represents a significant departure from Minnesota's iron mining tradition. Sulfide mining can produce acid waste and sulfates that mobilize the release of heavy metals into the environment. These metals include known neurotoxins such as lead and mercury. Mining activities also create airborne fibers and pollutants that can contribute to increased morbidity. The short- and long-term effects of exposure to these substances on human health should be considered in present and future sulfide mining proposals. In addition, Minnesota physicians need to understand the potential adverse mental and physical health effects of sulfide mining on mine workers and residents of communities near mining operations.

The Duluth Complex is a geological formation that contains deposits of copper, nickel and palladium group metals. It is located at the eastern end of the Mesabi Iron Range in northeastern Minnesota.¹ PolyMet Mining plans to build an open-pit mine in the northeastern part of the state to recover those valuable metals. Other mining companies are also exploring mineral deposits and preparing proposals for extracting them.

During the past three years, multiple organizations representing health care professionals have voiced concern about the potential effects of copper-nickel mining on human health. The Minnesota Medical Association, Minnesota Public Health Association, Minnesota Nurses Association and Minnesota Academy of Family Physicians have each endorsed deeper inquiry

FIGURE 1

Metal sulfide oxidation sequence using pyrite as an example

Pyrite (FeS_2) is exposed to air (O_2) and water (H_2O)

A sequence of reactions occur creating sulfate, ferric hydroxide and hydrogen ions.

Additional chemical reactions occur involving pyrite, iron sulfate and water, resulting in the release of sulfuric acid.

Sulfuric acid promotes release of other metals from rock and causes harm to aquatic ecosystems.

into the potential health effects of sulfide mining, and specifically of copper-nickel mining. Although the majority of debates about sulfide mining in our state have been framed as “environment versus jobs,” the impact on human health needs to be a part of these discussions.

Sulfide mining has significant potential for the release of toxic chemicals into the environment. These include a number of chemicals identified by the World Health Organization as being of major public health concern: arsenic, asbestos, cadmium, lead and mercury.² Given this ominous list, and the possible synergistic effects of co-exposure to more than one of these chemicals, it is important that physicians understand why concerns are being raised about this type of mining. ➡

Source: Jacobs JA, Lehr JH, Testa SM. Acid Mine Drainage, Rock Drainage and Acid Sulfate Soils: Causes, Assessment, Prediction, Prevention and Remediation. Hoboken, NJ: John Wiley & Sons; 2014

How Acid Mine Drainage is Generated

Sulfide mining differs significantly from iron ore (taconite or ferrous) mining because it has the potential to generate acidic pH. Copper and nickel typically are bound to sulfur in rock. Because of this sulfur bond, they are described as sulfide minerals.³ The chief iron-bearing minerals in iron mining are iron oxides and iron carbonate,⁴ neither of which are sulfide minerals. Typical iron ore in Minnesota is relatively poor in sulfide minerals and contains minerals that actually buffer acid generation. Minnesota has not experienced large-scale release of toxic metals from iron mine waste into the environment.

However, both iron and sulfide mining operations do involve the excavation of millions of tons of rock in order to acquire a fractional amount of desired product. The ore is then processed to yield the desired metal. The surface mine site as well as mining wastes (overlying material, waste rock and “tailings”—fine-grained materials left over after the metals of interest are extracted) are exposed to moisture and atmospheric oxygen. When the sulfide mineral ore and wastes come into contact with air and water, chemical reactions occur that result in seepage of sulfuric acid, sulfate and toxic metals into surface and ground water. The general concept is as follows:

Metal sulfide + air + water →

**Mobilized metal + salts + acid
(including sulfuric acid)**

An example of the metal sulfide reaction is outlined in Figure 1. It demonstrates how sulfuric acid is generated in the presence of unearthed sulfide mineral rock.

Copper-nickel ore frequently contains iron sulfide minerals such as pyrite (FeS_2), one of the world's most common sulfide

FIGURE 2

Acid mine drainage



Iron hydroxide precipitating in a stream can be seen as the yellow-brownish discoloration sometimes referred to as “ochre” or “yellowboy.”

minerals. The atmospheric oxidation of pyrite ultimately results in the release of sulfuric acid.³ Under certain conditions, ferric iron (Fe^{3+}) remains soluble in acidic outflows and forms the reddish-orange to yellow ferric hydroxide ($\text{Fe}(\text{OH})_3$), a precipitate often recognized as the hallmark of waters containing acid mine drainage³ (Figure 2).

Aqueous sulfuric acid is released into the surrounding environment and leaches heavy metals from the rock. The release of sulfuric acid and heavy metals into surface and ground water, and eventually into streams and lakes, is called “acid mine drainage.” Many of the copper sulfide mines currently operating in the United States are located in the Southwest, a region that receives little rain and snow; thus, communication between surface and groundwater resources is limited. In wetter climates like Minnesota's, surface and shallow groundwater are more vulnerable to the negative effects of sulfide mining.⁵

Ore that contains commercially desired metals often contains other metals includ-

ing mercury, lead and arsenic, which are similarly bound to sulfur. Studies of the Duluth Complex formation suggest that leachate will likely include copper, nickel, cobalt and zinc.⁶

By understanding the general concept of sulfide mineral oxidation (Figure 1), one can see how toxic metals are mobilized from solid rock into the environment and can generate sulfuric acid.⁷ This reaction can result in ongoing leaching of metals from mine ore and waste rock, which can continue for centuries.

The Role of Microorganisms

Microorganisms are critical to acid mine drainage, as they accelerate the release of metals. These include extremophilic, sulfur-oxidizing and iron-oxidizing bacteria and archaea. One model organism is *Acidithiobacillus ferrooxidans*, which has been well-studied in the context of sulfide mining because it catalyzes ferrous iron to ferric iron. The regeneration of ferric iron exponentially increases the rate of breakdown of pyrite and sulfide minerals, increasing acid mine drainage.³

Select anaerobic microorganisms carry a gene that allows them to add a methyl group to inorganic mercury to create the most toxic form of mercury, methyl mercury. The environmental conditions that promote mercury methylation are complex and not completely understood, but they often are associated with bacterial sulfate reduction (anaerobic organisms that “breathe” sulfate as an alternative to oxygen).⁸ Methylation occurs in the sediments, wetlands, ombrotrophic (“cloud fed”) bogs and peat lands that are found in Minnesota's water-rich environment.⁹

Multiple variables affect the methylation reaction that creates methyl mercury including pH, temperature and concentrations of carbon, iron and sulfate. It appears that higher levels of sulfate (SO_4^{2-}) can enhance the rates of mercury methyla-

PHOTO COURTESY U.S. GEOLOGICAL SURVEY

tion because they can stimulate bacterial sulfate reduction.⁸ Since acid mine drainage includes sulfate, it is important to understand that increases in sulfate can increase the amount of methylated mercury released into the environment, primarily when that sulfate stimulates bacterial sulfate reduction in anoxic environments.

Mercury Already an Issue in Minnesota

Mercury can be found in the air, sediment, water, soil and living organisms. Humans acquire mercury in two ways: by breathing gaseous mercury or ingesting methyl mercury, notably by eating fish and shellfish. Methyl mercury is found throughout fish tissue, including muscle, and is not removed by trimming the fat, avoiding certain parts of fish or using special cooking methods.¹⁰ Figure 3 shows the sequence of events by which release of anthropogenic sulfate can result in increased mercury levels in fish.

Mercury contamination of fish is a significant public health concern in Minnesota because of its neurotoxicity. In 2011, the Minnesota Department of Health found that one out of 10 infants in Minnesota's Lake Superior region were born with unsafe levels of mercury in their blood.¹¹ Many of Minnesota's northern waters are already legally classified as impaired because of the presence of mercury in fish tissue. This predates any potential mercury increases resulting from acid mine drainage.

Precise predictions of methyl mercury increases that would result from an influx of sulfate caused by mining can be challenging. However, concern is warranted because fishing remains important to Minnesotans,¹⁰ and fish is an important food source for both indigenous and non-indigenous residents. Rural and tribal residents may be at greater risk of mercury exposure than urban or suburban residents because of their higher rates of self-caught fish consumption.¹²

Mercury toxicity as a result of ingesting heavily contaminated fish can result in a range of neuropsychiatric issues including abnormal brain development and sensory distortions (paranoia and hallucinations). The developing brains of fetuses and children can experience the most profound and devastating consequences of exposure to mercury and other heavy metals.

Many illnesses of the brain and central nervous system are categorized as neurodevelopmental disorders. These include attention deficit hyperactivity disorder, learning disorders, autistic spectrum disorders, language disorders and intellectual disabilities. The causes of neurodevelopmental disorders are multifactorial, but the connection to exposures to heavy metals, particularly methyl mercury, is known.¹³

FIGURE 3

Connection between anthropogenic sulfate release and human mercury exposure

Release of sulfate into the environment from anthropogenic source (example: acid mine drainage)

Sulfate reaches wetlands where it can stimulate certain "sulfate-breathing" microorganisms that are capable of converting inorganic mercury to methyl mercury.

Enhanced rates of mercury methylation can occur.

Methylmercury bioaccumulates in aquatic ecosystems, including fish.

Humans consume mercury-contaminated fish.

These conditions cannot be cured, and they come with significant personal, familial and societal costs. A small increase in incidence resulting from increased mercury exposure may result in large costs to society on a population level.¹⁴ A recent consensus statement by Project TENDR issued a strong call for "recommendations to monitor, assess and reduce exposures to neurotoxic chemicals."¹⁵

Air Quality Considerations

The ore complex that contains copper, nickel and precious metals may also contain amphibole fibers. Amphibole fibers are often described as elongated mineral particles (EMPs). EMP fibers are crystals with similarities to asbestos. When ore is mined and processed, EMPs can be released. Currently, EMPs pose an uncertain risk to human health. Because of this uncertainty, longitudinal biomonitoring of people and communities exposed to EMPs is needed.

"Fugitive dust" is a term applied to dust that escapes mining operations. This can include dust that mining trucks generate on the road or dust that escapes as ore is transported in open train cars. Although levels may be difficult to quantify, fugitive dust may have health effects on both mineworkers and residents of nearby communities. Fossil fuel combustion, which is needed to generate electric power for mining, is another source of air pollution, the effects of which need to be considered.

Worker Exposures and Concerns

Safe workplace guidelines are important for people employed in the mining industry. Mine workers require protection from the airborne particulates and dust that are associated with mining operations. Sulfide mining, by virtue of its novel ore composition, presents new environmental safety questions. ➡

The Mine Safety and Health Administration (MSHA) oversees mine safety and releases guidelines for worker protection. MSHA-allowable exposure levels for airborne exposures other than to asbestos are tied to the 1973 American Conference of Governmental Industrial Hygienists (ACGIH) guidelines. The MSHA guidelines do not reflect current science on the health consequences of airborne exposures in mining. The National Institute of Occupational Health and Safety (NIOSH), MSHA and the Occupational Safety and Health Administration (OSHA) have all proposed reduction of the allowable exposure by 50% from the 1973 ACGIH guidelines. In order to better protect Minnesota's miners, the threshold for allowable airborne exposures should be based on more contemporary science. Both NIOSH and ACGIH have published more up-to-date recommendations.^{16,17}

OSHA has published models for medical surveillance of workers exposed to a variety of chemical hazards. Because the Duluth Complex rock includes silicates and other minerals, characterization of the potential adverse chemical and mineral exposures for workers using Duluth Complex-derived rock is important. OSHA provides medical surveillance models for nearly 20 compounds; however, no single overarching medical surveillance recommendation exists for sulfide mining. Given the long latency for the appearance of mining-related health effects, establishment of medical surveillance programs should be considered in the planning of the mine project.

Planning for Unanticipated Events

Proposals for sulfide mining operations must describe how water quality will be preserved, but may not take into account

the extent of extreme weather events. In Minnesota, we are experiencing more significant rain events.¹⁸ In June 2012, for example, the northeastern part of the state received 10 inches of rain in 24 hours. Significant rainfall such as this may result in unintended escape of mining wastewater and accompanying toxins.

A 2015 study of tailings storage facility failures centering on those categorized as "serious" or "very serious" determined that such failures have increased over the last 20 years.¹⁹ For example, in 2014, a British Columbia copper and gold mine tailings pond breach spilled over 6 billion gallons of waste and polluted water into the surrounding lakes and watershed. Such events underscore the need to plan for a catastrophic event involving sulfide mines.

Current regulations also require mining companies to provide plans for the closure of an operation; this involves continued water treatment using filters or reverse osmosis systems. Post-closure water treatment can be necessary for centuries. Equipment malfunctions, natural disasters, extended power outages or inadequate funding can create an unintended interruption in water treatment. It is essential to pre-plan in order to prevent such interruptions from contaminating ground and surface water and the human water supply.

Current Regulation and What is Needed

In 1969, the federal government enacted the National Environmental Policy Act, which directs all federal agencies to take into account the health impacts of all federal actions "significantly affecting the quality of the human environment."²⁰ The Minnesota Environmental Policy Act of 1973 directs "all department and agencies of the state government to ... undertake, contract for or fund such research as is needed in order to determine and clarify effects by known or suspected pollutants which may be detrimental to human health."²¹

With these laws in mind, physicians might assume existing regulations will protect human health. The current mandated evaluations of mining proposals do address air and water quality impacts and toxin discharges. Yet the laws do not require a comprehensive, long-range examination of potential effects on health. For example, environmental reviews may scientifically model the amount of mercury that may be released into surface and ground water, but they do not answer questions about the potential effects on human health of that mercury as it accumulates in food sources.

The short- and long-term effects on human health should be considered in present and future sulfide mining proposals. Both the EPA's Health Risk Assessment (HRA) and Health Impact Assessment (HIA) can be used for this kind of evaluation. The HRA estimates the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environments now and in the future.²² The HIA focuses on "health consequences of decisions upstream from health"²³ and can be defined as "a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program or project on the health of a population and the distribution of those effects within the population." The HIA provides recommendations on monitoring and managing those effects.²⁴ Incorporating an HRA and an HIA into the environmental review for a proposed sulfide mining project could enable a more informed, integrated and meaningful discussion of human health concerns.

Conclusion

Sulfide ore mining presents a significant departure from the traditional iron ore mining done in Minnesota. Because of our state's water-rich environment and

the chemical composition of sulfide ore, proposed sulfide mining raises concern about potential deleterious effects on human health. Physicians must continue to educate themselves about the evolving interplay of mining operations and the health of the communities in which they practice. **MM**

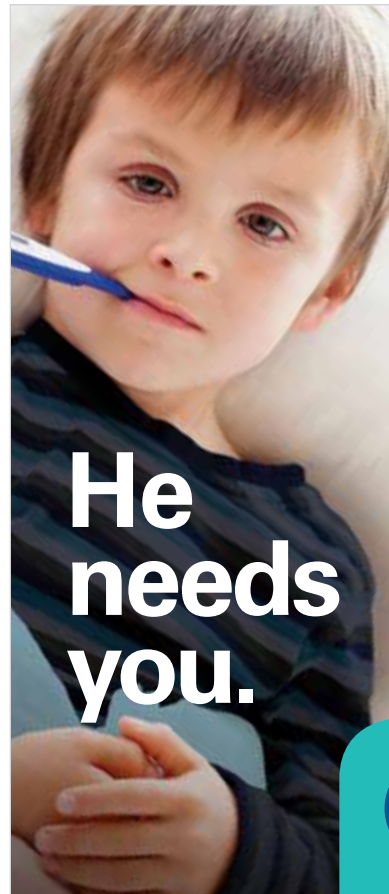
Emily Onello and Jennifer Pearson are family physicians in Duluth. Deb Allert is a family physician in Two Harbors. Steve Bauer is a child and adolescent psychiatrist who practices in northeastern Minnesota. Margaret Saracino is a child and adolescent psychiatrist in Duluth. Kris Wegerson and John Ipsen are family physicians who practiced medicine in Duluth for more than 20 years and now practice in Odanah, Wisconsin. Douglas Wendland is an occupational medicine and family physician in Duluth.

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**North Memorial
Health Care**

Commissioner David Frederickson, Chairman Minnesota Environmental Quality Board
520 Lafayette Road North Saint Paul, MN 55155

Dear Commissioner Frederickson,

The undersigned members of the Minnesota Environmental Partnership write to express their concerns for serious deficiencies we find in the recommendations contained in a recent Environmental Review Advisory Panel's (ERAP) report to the Environmental Quality Board (EQB) and to recommend a reasonable remedy.

We make the following requests: 1) that the current ERAP report recommendations be indefinitely shelved pending a more diverse and public interested citizen process evaluating the status of environmental review in Minnesota; 2) that the EQB form a standing citizen advisory panel and provide that citizen panel with the resources and staff support to evaluate environmental review; and 3) that the EQB make a clear commitment to take leadership and fulfill its legal and ethical responsibility to insist on rigorous environmental review and environmental protection.

The EQB formed this advisory panel to review Minnesota's environmental review program and to recommend ways to "modernize and improve the program's effectiveness and efficiency". The Panel was specifically requested to address climate change, mandatory categories, health impact assessment, alternative forms of review, and environmental justice issues.

We applaud the EQB's initiative to assemble an advisory panel on this important topic. All points of view must be taken into account when conducting a performance evaluation on MEPA. But we question the assumption in this report this group of stakeholders with such diametrically opposing views and objectives between a few of us citizen representatives and all the other interest can lead to recommendations that satisfactorily address today's most pressing environmental, climate and human health concerns.

Our experience with this and previous EQB efforts to "streamline" environmental review in 2009 and again in 2011 clearly demonstrate that reaching consensus between such widely divergent interests is frustrating and largely unproductive. Recommendations flowing from such efforts nearly always suggest major compromises in the process that reduce levels of project scrutiny, apply less scientific rigor or offer other measures that run contrary to those needed to achieve the most important goals in MEPA. We assert that there can only be one paramount interest intended to be served by the MEPA process; that being the broader, long-term public interest for restoring and preserving a healthy livable planet for many generations to come.

We contend that such compromises derived in this manner are unlikely to serve and may actually threaten the achievement of these broader public interests. A poorly drafted EAW or EIS that is forced to compromise on identifying a project's real impacts or fails to point clear alternative paths toward the more livable planet anticipated in MEPA has potential for doing more harm than good. This is true because weak or shallow environmental review documents that lack scientific rigor can actually be used to justify very unwise decisions.

For example, the ERAP's emphasis on simply using better bookkeeping methods for a proposed project's greenhouse gas emissions falls short of MEPA goals unless it is coupled with serious examination of sound energy alternatives, rational carbon sequestration budgets and adequate mitigation and adaptation measures that are commensurate with the known scale and immediacy of the issue.

The disparate debates among panel members disclosed in the report on what environmental review should or should not accomplish on the climate change issue is alarming. The report correctly states that environmental review documents are supposed to serve as guides to responsibilities of governmental units on ways to avoid or minimize adverse environmental effects as well as ways to restore and enhance environmental quality. Yet some panel members were allowed to regularly block consensus on such measures by insisting that environmental review was only to "gather information" rather than describe effective alternative solutions to urgent problems like climate change and human health impacts.

The ERAP report demonstrates what the several panels before it have proven, that deliberations among such diverse interests are unlikely to arrive at useful recommendations unless panel members, as a prerequisite, are committed to the longterm public-interest goal of a livable planet rather than to the advancement of special interests. To do this, a recognizable, science-based frame of reference regarding the planet's current environmental and climate condition should have been established for the panel by experts in their field.

One does not have to research much further than the evening news or daily newspapers to find strong evidence that environmental review is underperforming insofar as achieving goals of "harmony between humans and the natural environment". Climate change related extreme droughts, floods and forest fires, growing pollinator extinctions, increased groundwater depletion & contamination, Lake Superior algae blooms and increased incidents of childhood asthma, just to mention just a few, are shocking to the sensibilities for anyone paying attention.

Yet this panel, acting without having first been grounded in a prerequisite common frame of reference on the current condition of the climate, the state's ecosystems and human health focused much of its efforts exploring myriad ways to offer exemptions, exceptions and alternatives to the "hard look" scrutiny of conventional EAW's and EIS's. This would suggest that the panel had somehow reached an unspoken consensus that

environmental review was actually over-performing at its job of restoring and preserving a livable planet. Let us assure you, it is not.

In fact, even our conventional environmental review documents tend to present rather simplistic and reductive cataloguing of individual types of impacts, rather than a holistic, systems level analysis. There is much room for improvement, modernization, if you will.

The panel's report misses other opportunities to improve the process in nearly all of the key categories it was assigned to study including:

□ Mandatory Categories – where additional categories may be needed to curb the downward trends in human health, natural capital (ecosystem health) and climate; □ Health Impact Assessment – Where expert advice from medical professionals and state health officials for Health Impact Assessments was rejected; □ Alternative forms of review – Where the panel focused on substitute reviews or ways to justify exceptions to review rather than emphasizing specific ways for agencies to assist RGU's with difficult issues beyond their capabilities in order to “streamline” the review process while maintaining its efficacy; □ Environmental Justice – where the panel failed to address the issue at all and; □ Public Participation – Where the report recommends “best public participation practices” generally but fails to acknowledge the excellent and more specific “best civic engagement practices” already recommended to the EQB by the Human Rights Department this past year.

On this last point, we wish to emphasize here that both Federal and State environmental review processes, (under both NEPA and MEPA) are also intended to be a very transparent process offering exceptional opportunities for citizens to be educated about proposed projects and to meaningfully participate in the decision-making process. In fact, after several decades of experience under both the National Environmental Policy Act (NEPA) it was the President's Council on Environmental Quality who concluded that the NEPA environmental review process was the most powerful tool citizens had to hold their government accountable for preserving, restoring and protecting public health and essential ecosystems.

We also concur with EQB staff's observation that while the panel membership reflected a wide range of perspectives, many voices were not at the table and there is a large, unmet demand for broader, ongoing participation in this discussion. We contend that if environmental review is to resume its function as citizen's most powerful tool for achieving MEPA goals, it should be citizens themselves that conduct these regular performance evaluations on the program.

To do this, we call on the EQB to form a standing citizen advisory panel to conduct these periodic performance evaluations of the MEPA process. This should not be a panel of “stakeholders” paid to serve private financial interests, but a diverse collection of citizens dedicated to serve the public interest. And that this standing panel has at its disposal an independent panel of experts in such critical fields of ecology, climate change, health

impacts, civic engagement, and environmental justice to ground the panels work in evidence-based environmental, health and social sciences.

We would respectfully request that the ERAP Report's other proposals be shelved indefinitely until a more diverse and public interested process is allowed to evaluate environmental review, based on science and the legal and ethical purpose of environmental review. We have experimented long enough with the failed model of eminence-based partisan advice from "stakeholder" panels. It now time for the EQB to seek evidence-based advice from a well-informed and independent panel of citizens whose long term and demonstrated interests are the health of the planet and their fellow citizens on it.

We offer the assistance of experienced individuals in our memberships to seek out and recruit well-informed, civic-minded people with the credentials and resources to perform these vital functions.

Signed:

Center for Biological Diversity
Land Stewardship Project
Friends of Minnesota Scientific and Natural Areas
Mankato Area Environmentalists
Minnesota Interfaith Power and Light
Minnesota Native Plant Society
Minnesota Ornithologists Union
Northeastern Minnesotans for Wilderness
Pollinator Friendly Alliance
Renewing the Countryside
WaterLegacy
Wilderness in the City

Cc: Governor Mark Dayton Members of the EQB Will Seuffert, Executive
Director, EQB

Slide 1. Statement to Minnesota Environmental Quality Board,
Charles K. Dayton
May 1, 2019

Slide 2. Back in the early 1970's when John Herman and I were with MPIRG and then formed Dayton and Herman honest lawyers, we thought that by the time we were in our late 70's all the environmental problems would be solved. We didn't know about global warming, and the problems now seem even more difficult. But we were out to save the world. Pretty naïve.

My major concern about the environmental review process, and one that John and I published an article about some 20 years ago,¹ is that the study of alternatives to proposed projects, which should be the heart of many environmental reviews, has virtually been eliminated as the process has evolved over the decades. Time and again this criticism has been raised and apparently the practice is still the same. The harm that is done, despite voluminous Environmental Assessment Worksheets, is that the EAW does not require a discussion of alternatives. It should. Secondly the process should do a better job of reviewing the climate implications of projects. **Slide 3.** My first involvement was in 1971 with the passage of the Minnesota Environmental Rights Act. MERA.²

¹ Herman and Dayton, "Environmental Review an Unfulfilled Promise", Bench and Bar of Minnesota, (July 1990).

² <https://www.revisor.mn.gov/statutes/cite/116B>

I mention this because that statute contains the substantive standards and definitions that were later adopted in the Minnesota Environmental Policy act, or MEPA. That act creates standing for citizens to sue to protect the environment. Where the plaintiff brings a case which does not involve a specific environmental rule, the plaintiff makes a prima facie case (one which succeeds if not rebutted), by showing that the defendant is going to engage in conduct that is “likely to materially adversely affect the environment.” Then the burden of proof shifts to the defendant. The defendant can show that there is no feasible and prudent alternative, but “economic considerations alone” are not a defense.³ Note how important the concept of “feasible prudent alternatives” is. If there is such an alternative, that prevails.

Leading up the passage of MEPA in 1973, there were a series of studies that laid the groundwork for MEPA and I was involved in each of them in some way. A legislative committee chaired by the legendary State Senator Bob Dunn took testimony from a number of sources. The legislature ordered detailed study undertaken by committee directed by William Walton of the Minnesota Water research center. and finally, Governor Anderson appointed a Committee to help formulate his environmental agenda in 1973.

The National Environmental Policy Act (NEPA) had set the precedent, requiring Environmental Impact Statements on

³ <https://www.revisor.mn.gov/statutes/cite/116B.04>

major federal actions, but it contained no substantive standard of conduct.

Slide 4. However, MEPA **did** include a standard of conduct, modeled on the standard that had been adopted in MERA in 1971, a standard for which the examination of alternatives again is critical. If a project requiring governmental approval in Minnesota will likely result in “pollution, Impairment or destruction of natural resources,” as those terms are defined in MERA that action “shall not be allowed””so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. “Economic considerations alone shall not justify such conduct.” This is a standard governing all agency decisions and permits.⁴ There is nothing like it in the Federal NEPA or even in the laws of other states.

The idea came from the Federal Aid Highway Act and the Overton park case⁵, where US Supreme Court held that the requirement that parkland not be taken for highway where there is a feasible and prudent alternative had real teeth, and that an alternative going around the park was not infeasible just because it costs more. It always cheaper to go through the park, the court noted.

⁴ <https://www.revisor.mn.gov/statutes/cite/116D.04> Subd. 6

⁵ https://ballotpedia.org/Citizens_to_Preserve_Overton_Park_v._Volpe

I was asked: “How does the current environmental review program align with your original vision of how the program was to function, when it was designed?”

The reason I draw attention to these substantive standards is that they depend on an understanding of alternatives.

The MEPA statute provides: “Where there is **potential for significant environmental effects resulting** from any major governmental action, the action shall be preceded by a **detailed environmental impact statement** prepared by the responsible governmental unit. The environmental impact statement shall be an **analytical, rather than an encyclopedic document**, which describes the proposed action in detail, analyzes its significant environmental impacts, **discusses appropriate alternatives** to the proposed action and their impacts, and explores methods by which adverse environmental impacts of an action could be mitigated.”⁶

Slide 5. An environmental assessment worksheet was supposed to be just that, a worksheet, a checklist, to determine if an EIS is needed. That is not the way it works in practice. The EAW has become the principal vehicle for environmental review, a substitute for an EIS. We now have huge EAW’s.

⁶ <https://www.revisor.mn.gov/statutes/cite/116D.04> Subd. 2a

The EAW process produces a lot of information and sometimes forces the alteration of a project or the adoption of mitigation measures to reduce the overall environmental impact. This is a good thing. So, what's wrong with that?

BUT, while an EIS requires an analysis of alternatives, an EAW does not. This breaks my heart because of the importance of alternatives to sound environmental decision making.

This failure to require study of alternatives undercuts the application of the substantive standards of both MERA and MEPA. A description of alternatives is necessary to apply the substantive standards of MERA and MEPA requiring the adoption of the least damaging alternative. Perhaps that's why it has been avoided. In some cases, like the routing of a road, powerline, gas or oil pipeline, or the location of a tailings dump, the study of alternatives can be critical

Basically, EAWs have been substituted for EIS's.

Slide 6. Below are the numbers and types of environmental review documents that have been completed over the previous 4-years.

	EAWs	EISs	AUARs	Petitions
2015	66	3	9	14
2016	61	5	6	12

2017	98	3	15	6
2018	94	2	16	8

And this same pattern has historically been true. It was true 20 years ago when John and I wrote that article and its true now. Because large and costly EAW's are prepared, which are the size of an EIS, there must be another reason for project proposers to avoid an EIS by preparing a large and costly EAW, There is: **EAW's don't currently require the examination of alternatives.**

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Slide 7. Where there are alternatives which could be less damaging to the environment, those who are deciding whether to require an EIS need to know about them. It is a highly relevant consideration. Farmer Bryson's marsh is a perfect example, from one of the first cases under MEPA. Freeborn county proposed a road across a marsh. An EAW would not require the alternative of avoiding the marsh to be mentioned, yet that alternative became the whole basis for a strong supreme court decision under MERA to disallow the original project.

Why did this phenomenon of the monster EAW happen? I suspect that consulting firms had something to do with it, advising clients that if they prepare a large EAW they can

avoid an EIS. The State Agencies allowed it to happen, refusing to find potential for significant effects when they were obvious, and the courts slavishly deferred to the agencies.

Slide 8. There are other objections to the current ER process of which I am aware, and which will no doubt be discussed by others.

A. Failure to require a full discussion of Greenhouse gas implications of projects, apart from emission volumes.

B. Lack of the use of the best scientific information in the review process.

C. Thresholds are too high.

D. Cumulative impact of multiple projects is not being recognized or studied.

E. “Potential for significant effect” the trigger for an EIS is ill-defined, allowing for political decisions.

Slide 9. So how can this new EQB examine and respond to the various criticisms of how the program has been administered over four and a half decades? I was asked what I would do I were a member of the EQB now. (I was a member of the original board in 1974)

My two highest priorities would be to include both an analysis of alternatives and an enhanced analysis of climate impact in

the environmental review process. I recognize that a full EIS requires discussion of climate impacts and that the EAW worksheet requires a disclosure of emissions from stationary sources and vehicles. But there is no requirement to discuss emissions from CAFO's for example. Where new building development occurs, how can the carbon footprint be minimized? Buildings are a huge source of carbon emissions, from lighting heating air conditioning. The recent Environmental Review Advisory Panel took a shot at this and made some great progress, recognizing that EAW's should include climate impact information. They recognized that a lot more work is needed here.

I frankly do not know how this agency, with limited staff, would undertake the task other than by convening a panel of experts, although that may be an unpopular suggestion. I would learn from the approach that led to the statue at the beginning, the one followed by the early Water Resources Center study. The best way to do this would be to **establish a blue ribbon committee**. The charge to the committee would be to review the Environmental Review Process in light of the policies and mandatory "Duties" of MEPA itself, found in section 2 and 3 of the statute.

Slide 10. There is statutory authority in the Act itself for doing this:

(2) "Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and

the environmental arts in planning and in decision making which may have an impact on the environment; **as an aid in accomplishing this purpose there shall be established advisory councils or other forums for consultation with persons in appropriate fields of specialization** so as to ensure that the latest and most authoritative findings will be considered in administrative and regulatory decision making as quickly and as amply as possible.”⁷

I know there have been reviews by committees in the past that accomplished nothing but disagreement and that some have generated opposition. I’m aware of the recent ERAP report, and I think it provides a lot of useful information that can be utilized and built upon. If you don’t want to do a panel of experts find some other process that will work,

Slide 11. DO NOT ESTABLISH A “STAKEHOLDERS COMMITTEE” of people who are from regulated industries and have a current stake in the outcome, or who may have been in that position recently. That is simply a recipe for non-action. There have been at least three stakeholder committees over the years which have had little or no effect in making change. I would have a small committee of 3 to 5 members. Certainly the stakeholders and companies should testify and be consulted, but they cannot be the decision makers. Greg

⁷ <https://www.revisor.mn.gov/statutes/cite/116D.03>, Subd. 2 (2)

Downing, who supervised the Environmental Review process at the EQB for decades, told me that there were “several” advisory groups that failed to make any substantial progress and that “I do recall that one of the best groups reached the conclusion that the only thing they could agree on was that they disagreed.”

I would seek out scientists, and environmental professionals that have no connection to consulting firms, teachers, professors, retired environmental agency people, retired judges, people with jobs not dependent on regulated businesses. The committee should be people who do not have any interest in the outcome except that the process best serve the goals of the public and the environment of the state.

I would not disqualify people who are only interested in protecting the public interest and the environment. That’s the point, and that’s not a monetary self-interest, but an interest in the earth itself.

The Committee should of course listen to and learn from business and environmental professionals and stakeholders. They should talk to citizens who have been trying to protect a resource using MEPA and learn from some of the other 15 states that have done it differently, where an EIS is the normal course for environmental review.

It is critical to adequately staff the committee. Ask for recommendations to improve the process both to make it more efficient and more meaningful.

I would suggest that you charge this committee to go back to basics, to the basic goals and duties which fortunately are provided in the Sections 2 and 3 of the MEPA statute itself. These are directives to you as the heads of state agencies, and members of the EQB. And they are not optional.

Section 2 of the statute provides a **vision statement** of goals and policies for the state government to promote environmental quality. These are described as the “continuing responsibility of the state government.”

Then, in Section 3, all agencies are specifically directed to interpret the law and regulations of the state to achieve those policies and are specifically directed by the words “All departments and agencies of the state government **shall**” followed by a list of “**duties**” for departments and agencies.

So, here you have lofty goals and far reaching mandatory directives. I would urge each of you to go back and read these goals and duties carefully, they are as relevant today as they were in 1974.

I'd like to take a quick look at just a few of those policies and duties, those that relate specifically to climate change and to alternatives.

Slide 12. In Section 2, at least 4 of these vision statement or policies of relate to climate change and global warming, and I would ask the blue ribbon committee to examine whether the climate impacts of proposed projects are being adequately addressed in the environmental review process. And I would take a look at the process in California and y New York, where global warming impacts are specifically included.

Section 2, the policy section, provides that “it is the continuing responsibility of state government...to improve and coordinate state plans, functions, programs and resources to the end that the state may:

- . of the environment for succeeding generations;...

- (3) discourage ecologically unsound aspects of population, economic and technological growth, and develop and implement a policy such that growth occurs only in an environmentally acceptable manner;

- (9) practice thrift in the use of energy and maximize the use of energy efficient systems for the utilization of energy, and minimize the environmental impact from energy production and use;

(16) reduce the deleterious impact on air and water quality from all sources, including the deleterious environmental impact due to operation of vehicles with internal combustion engines in urbanized areas.⁸

These directives relate to more than just air emissions, and include the carbon footprint considerations of new developments.

Slide13. Then, Section 3 of the statute lists “**duties**” of state agencies. These duties are guides which you can use to determine whether the EIS program is meeting the intent of the statute. These are not just goals, these are specific directions, with the words “**shall**” and “**duties**”

All and agencies of the state government shall:...”

At least one of these duties relates directly to global warming:

(5) recognize the worldwide and long range character of environmental problems and, where consistent with the policy of the state, lend appropriate support to initiatives, resolutions, and programs designed to maximize interstate, national and international cooperation in anticipating and preventing a decline in the quality of the world environment.⁹

⁸ Id.

⁹ <https://www.revisor.mn.gov/statutes/cite/116D.03>

Note the prescience of this statement in 1974, when global warming was not an issue being discussed. Are climate change and greenhouse gas emissions being adequately addressed in the environmental review. My understanding is that much more can be done.

Slide 14. Most significantly, Section 3 requires the study of alternatives.

Agencies shall “(4) *study, develop, and describe **appropriate alternatives** to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;*”¹⁰

As noted, a major criticism is that eliminating the study of alternatives cuts the heart out of the environmental review process in some cases. And it is incomprehensible to me how we got to an environmental review process that does not include alternatives, in view of what is listed as a “duty” of all agencies, “to study and develop appropriate alternatives.” I suggest to you that the statute has been ignored.

Slide 15. So what can be done? I have recommended a blue ribbon committee and I believe that’s the only way to get a thorough review of the process. A wholesale review of the

¹⁰ Id.

rules by non-biased committee would be appropriate, after some 45 years of avoiding the intent of the Statute to require EIS on major projects. You could aim for a report by the 50th anniversary of Earth Day, a year from now.

Short of a thorough review and major reform , however, you could just amend the guidelines for the EAW worksheet.¹¹ If you don't want to change the practice of large EAW's which has grown up over the decades, you could do a band-aid fix by requiring EAW's to discuss alternatives as well as energy and global warming impacts and mitigation opportunities. This would help by at least requiring alternatives to be a part of the Environmental Review process

Slide 16. The MEQB has strong authority under the statute. to require a description of reasonable alternatives to a proposed action as well as climate impacts . The rules provide that the chair of the EQB shall develop the form for the EAW and that The EAW form shall be assessed by the EQB chair periodically and may be altered by the EQB chair to improve the effectiveness of the

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<https://www.eqb.stionantate.mn.us/sites/default/files/documents/Finalized%20EAW%20Form%20July2013.pdf>

document.¹². It seems clear to me that it would not require a formal rule making just to amend the worksheet form.

This need not be burdensome, but at least would provide some guidance to the agency and other interested parties and the public. It would help facilitate the application of the substantive standard discussed above, that the alternative with less adverse environmental impact be selected. If there are no alternatives other than a no-build alternative, the EAW can say that.

And the same amendment of the worksheet requirements by the Chair could be used for global warming impacts.

Of course my preference would be for a thorough study of environmental review, followed by a formal rulemaking to address the recommendations of a blue ribbon committee. Whether the limited amendments that I have suggested regarding alternatives and climate impacts are done through action of the chair or by formal rulemaking, I would submit that they are necessary, in light of the

12 **4410.1300 EAW FORM.**

A. The EQB chair shall develop an EAW form to be used by the RGU. The EQB chair may approve the use of an alternative EAW form if an RGU demonstrates the alternative form will better accommodate the RGU's function or better address a particular type of project and the alternative form will provide more complete, more accurate, or more relevant information.

B. The EAW form shall be assessed by the EQB chair periodically and may be altered by the EQB chair to improve the effectiveness of the document.

policies and duties set forth in the statute, the importance of alternatives to the application of substantive standards and the original intent of the legislature in passing the law.

Slide 17; This is a critical time for the environment as you well know. In many ways the next 8 to ten years, will determine the future of the planet. You have broad authority to make things better. It's a grave responsibility.

This is a time for some bold action.

Susan Perrin Schubert
susanpschubert@gmail.com
319 Pine Mountain Road
Grand Marais, Mn. 55604

Attention: Judge LauraSue Schlatter

RCVD OAH '19 JUL 16

Re: Mandatory Category Rulemaking Comment
Docket # 80-9008-35532

Thank you Judge Schlatter for this opportunity to add to my comments on record, delivered in person on 5/31/19 in Minneapolis regarding the proposed changes to motorized recreational trails, Rule 4410.4300 subpart 37.

As I stated in that testimony, and reiterate here, I do NOT agree that the statement of general reasonableness or need given by the EQB for the current proposed changes of items A. and B under recreational trails, are justified.

I also do not agree that these changes are generally reasonable, as applied to motorized recreational trails, based on the fact the EQB provides; that the legislature has requested these changes be made 3 separate times to support regulatory review efficiency and streamline the environmental process. Nor that the changes to Items A. and B,. are necessary and reasonable because in 2015 ***the Legislature*** determined there was potential for significant environmental effects at the proposed threshold levels.

Nor do I agree with the justifications the EQB provides that the current proposed rule change to items A. and B. is necessary to fulfill a directive by the Legislature to update environmental rules to allow certain trails to be built or designated without requiring environmental review.

I also do not agree that the rule change to item A. and B. is necessary to fulfill a directive by the Legislature to update rule language and statutory language.

It is the executive branch, which is the Environmental Quality Board (EQB) under the Governor and the Courts, that are responsible for holding the Legislature in check and assuring that execution of laws are not in conflict with legislation that has passed, including here, the longstanding requirements of the Minnesota Environmental Policy Act (MEPA).

As I will detail in the following testimony, the proposed rule changes for mandatory review for Motorized Recreational Trails, Items A. and B. are, I believe, in direct conflict with the EQB's responsibility under **MEPA**

116D.01 “to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings.”

The Legislature directs agencies, including the EQB, to follow all of MEPA when it states in **MEPA 116D.03 subdivision 1: Requirement**

The legislature authorizes and directs that, to the fullest extent practicable the policies, rules and public laws of the state shall be interpreted and administered in accordance with the policies set forth in sections 116D.01-116D.06

The purpose of MEPA, which all state agencies are to follow including the EQB are stated in :

MEPA 116D.01. PURPOSE

- a) To declare a state policy that will encourage productive and enjoyable harmony between human beings and their environment;
- b) **To promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings;**
- c) To enrich the understanding of the ecological systems and natural resources important to the state and to the nation.

To accomplish the regulatory objectives of MEPA stated under 116D.01, all state agencies, including the EQB, are given specific responsibilities noted in **116D.02, which includes:**

Subdivision 1. Policy.

.....to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of the state's people.

And

Subdivision 2. State Responsibilities.

In order to carry out the policy set forth in Laws 1973, chapter 412, it is the continuing responsibility of the state government to use all practicable means, consistent with other essential considerations of state policy to improve and coordinate state plans, functions and programs to the end that the state may:

- 1) **Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;**

(Doc 1)

To, “ *use all practicable means* ”, to carry out MEPA and the policy set forth in Laws 1973, chapter 412, clearly includes administering the rules of Environmental Review in a way that fulfills the EQB’s and all state member agencies responsibility to effectively achieve the objectives set forth in MEPA.

As stated in the 1982 SONAR under:
(Doc 2)

II. History of Environmental Review in Minnesota:

“ Environmental review does not of itself make decisions; rather it provides necessary information to government units which they can utilize to make environmentally sensitive decisions in the best interests of the public. It has a further purpose in allowing the public to participate in decisions that affect them. ***The intent is to prevent environmental degradation by wise and informed decisions.*** ”

The changes proposed by Items A. and B., both of which would entail increasing the mileage threshold for mandatory environmental review would promote, rather than prevent environmental degradation, as I will document in the following pages.

Therefore, I maintain that Items A. and B. are in direct conflict with the intent of Environmental Review *to prevent environmental degradation by wise and informed decisions* and with the stated purpose of the MEPA.

116D. 01 (b), which all state agencies, including the EQB are to follow. The rule changes proposed in items A. and B. are also in conflict with the EQB’s responsibilities to carry out MEPA and act as a trustee of the environment for succeeding generations under 116 D.02 Subdivision 2, 1.

The EQB maintains:

“ The proposed rule amendments include updates to thresholds in EAW and EIS categories to reflect the EQB’s experience in applying the process. These changes are needed because the majority of the EAW and EIS categories were established in the 1980s and the 1990s and do not reflect the modern regulatory system or project types. Rule updates are needed to keep the rules relevant and more easily understood by project proposers, RUGS and citizens.”

I do not agree that this stated need, to increase the mileage threshold for mandatory review of motorized recreational trails is valid and applicable to motorized recreational trails because the EIS and EAW categories were created in the 1980s and the 1990s.

The only change in motorized recreational trails that has transpired since the 1980s is huge growth in the recreational vehicle industry and in user numbers.

The 2008 Superior National Forest, Forest-wide Travel Management Project, cited the figures of the most recent Minnesota Department of Natural Resources OHV study, done in 2005. “ *The total Minnesota off highway vehicles registered had increased dramatically from 56,706 in 1994 to 222,594 in 2004.*”

(Doc 3)

This is an almost 400% increase in those ten years alone. User demand and industry growth has continued over the past 15 years since those figures were recorded.

Given the explosive growth of the recreational vehicle industry, user population and the resulting increase in use of our trails and roads by these vehicles since the 1980s and 1990s, I believe that under the EQBs MEPA responsibility 116D.01,

To promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings;

the threshold level of mandatory review for the impact of recreational vehicles on natural resources and human well being, should remain at 10 miles to be able to review and analyze the exponential increase in recreational vehicle use on our routes and trails and the de facto significant escalation of potential risk to our natural resources, watersheds, woods, aquatic, wild and human life with such a dramatic increase in motorized vehicle use.

To have such a dramatic increase in vehicles and use of our routes and trails by motorized recreational vehicles and to increase the threshold mileage by 150% from 10 miles to 25 miles, before a mandatory review is required, is in direct conflict with the EQB's duties under MEPA to protect the environment, to execute duties in the public interest and to act as the trustee of our environment for future generations.

It is only common, evident sense, that with an increase in recreational vehicles on trails and roads, the more potential there is for environmental damage to natural resources due to volume and use of trails and routes alone. Therefore, I maintain, the threshold for mandatory review should remain at 10 miles and the fact that the EAW/ EIS categories were created in the 1980s and 1990s is not germane to the discussion of whether or not threshold mileage for motorized recreational trails and routes should be altered.

Further Review of the proposed changes in Item A. and B.

ITEM A.

In item A, the EQB proposes the threshold mileage for a trail to receive a mandatory review be increased from the current 10 miles, to 25 miles. The NEED and reasonableness to increase the threshold mileage from 10 to 25, based on the need to be cost effective and streamline the process and the statement that changes in threshold changes to EAW and EIS categories are reasonably based on many years of rule application and experience from practitioners, is not reasonably based in my opinion. Also I do not agree with the statement that the threshold changes to Items A. and B. are necessary and reasonable because the 2015 Legislature determined there was potential for significant environmental effects at the proposed threshold levels.

All of these statements of need and reasonableness to justify the 150% change in threshold mileage from 10 to 25 miles are in direct conflict with the intent of the environmental review and the NEED and REASONABLENESS stated in the 1982 SONAR and restated in the 2004 SONAR of mandatory EAW categories, that is included in Exhibits for Sonar, Mandatory Review Categories, January 2013, Appendix D, pgs. D8 , which states: (Doc 4)

“Linear projects usually entail greater impact as a function of increased length.”

And it goes on to state:

“ Specifically for recreational trails, while different types of trails or trail uses vary in their impacts such as ecological damage, runoff and erosion, damage to water resources and noise, the potential for these impacts will tend to increase with the length of the project, simply because all things being equal, a longer trail has more likelihood of encountering sensitive resources of whatever kind.”

Therefore, to increase the threshold 150%, from 10 miles to 25 miles, before an environmental review is needed, when the governing RGU itself has stated that linear projects usually entail greater impact as a function of length, would be to intentionally allow, without any mandatory review, the creation of longer trails with the acknowledged inherent potential for greater environmental impact due to the increased length and therefore, “ more likelihood of encountering sensitive resources of whatever kind.” . This is in direct conflict with the EQB’s mandate under MEPA 116D.01.

- a) To promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings**

Also it violates, in my view, the intent of the Environmental Review which is to prevent environmental degradation by wise and informed decisions as stated in the 1982 SONAR, *to prevent environmental degradation by wise and informed decisions.* (Doc 2)

In view of the above, I believe it is the EQB's responsibility, as dictated by the legislature, in MEPA 116D.03, to maintain the threshold at 10 miles as it is in the best interest of the environment to prevent degradation, as supported by the 1982 Sonar statement that the degree of environmental impact is a function of length, and it is in the best interest of succeeding generations for whom the EQB is the environmental trustee , as stated in 116D.02 under Subdivision 1. Policy and Subdivision 2. State Responsibilities.

ITEM B.

The rule change proposed in Item B states that, " When designating an existing motorized trail or existing corridor in current legal use by motor vehicles, the designation does not contribute to the 25 mile threshold under this item."

The language in this proposed rule change of Item B. remains impermissibly vague in my view and so indefinite one must guess at its meaning.

It does not establish a reasonably clear policy or standard to control and guide administrative officers so that the rule is carried out by virtue of its own terms and not according to the whim or caprice of the officer.

What is the definition of “ ***an existing corridor in current legal use by motor vehicles?***” This description is not specific enough. It could include public roads and highways, to the detriment of the general public’s physical safety and well being and jeopardize the physical integrity of needed public transportation infrastructure. It could also include pipeline corridors and power line corridors that ATVS can legally ride along in some areas.

It could also include seldom used, primitive logging roads that are not closed and can pose significant environmental impact issues of sedimentation and invasive species spread, if designated for motorized recreational use.

The language is unclear to the user and to the enforcer regarding the specific parameters for a route to be designated for a new motorized recreational use. Could, for example, a mudder truck go down a pipeline or powerline corridor which is legally used by ATVS in some areas? How does the enforcer know? How does the user know?

In addition, this proposed rule change of Item B. makes the underlying assumption that adding an additional traffic load to an already “existing corridor in current legal use by motor vehicles” would not increase the potential for environmental damage, which has already been inflicted by the created corridor, and therefore, the new use, should not be counted towards the proposed new 25 mile threshold for a mandatory review.

I maintain and will review below with documentation and an example, that this is not true and that adding a new motorized recreational use to an “existing corridor in current legal use by motor vehicles” has the potential to significantly increase potential environmental damage to natural resources, fish and wildlife. I maintain that any new recreational use added to an “existing corridor in current legal use by motor vehicles” should count towards the mileage threshold for a mandatory environmental review , which I believe should be kept at the current 10 miles based on the RGU comments of the 1982 Sonar that the degree of environmental impact potential is a function of linear length.

Roads, (which I use here as one possible interpretation of many to represent, “an existing corridor in current legal use by motor vehicles”) were, in many instances, created long before the science of road ecology or environmental awareness. Therefore, current motorized vehicle use of these roads, can and does inflict significant chronic environmental damage to some of our natural resources.

However, low density population in some areas, along with historically low traffic volume, can, for example, mitigate the environmental impacts of sedimentation and fugitive dust load pollution to waters crossed by gravel roads.

However, to increase traffic load on these roads by adding yet another motorized vehicle use, would add to and increase the environmentally damaging effects such as sedimentation and fugitive dust load pollution of gravel roads to streams at road crossings.

We know from studies that fugitive dust pollution from Off road vehicles on a gravel road can travel 300 feet across buffer zones, to settle in waters at road crossings.

(Doc 5)

The Minnesota Pollution Control agency states that stream crossings on gravel roads are a contributing factor to stream sedimentation.

(Doc 6)

We also know that stream sedimentation can damage the habitat of highly pollution intolerant species such as trout that require clear, cold water by causing turbidity, increasing water temperature and decreasing available oxygen levels and eventually extirpate these sensitive species from streams.

(Doc 7)

As stated in Current Forestry Reports: The Potential Effects of Roads on the Environment and Mitigating their Impacts

(Doc 8)

“Perhaps the largest impact from forests roads is on water quality, through both chronic and acute deposition of sediment that can limit the beneficial uses of water and harm aquatic organisms in waters that originate from forests.”

Therefore, I maintain that any new motorized recreational use added to “ an exisiting corridor in current legal use by motor vehicles “ should have a mandatory review to analyze if this added motorized use has the potential to create a tipping point in environmental impact that could increase environmental damage to natural resources, fish and wildlife. For example, would adding a new motorized recreational vehicle use to an “ existing corridor in current legal use by motor vehicles” that crosses a designated trout stream, create enough added fugitive dust pollution and stream sedimentation to extirpate from the stream the highly sensitive trout species or jeopardize its reproduction and survival ?? Or if the “ existing corridor in current legal use by motor vehicles” crosses an exceptional stream, does the potential exist to degrade its exceptional use ranking, due to an increase in fugitive dust load and sedimentation pollution?

Under Antidegradation law, once a stream has achieved this highest exceptional use ranking, it must be maintained.

(Doc 9)

These potential risks to the environment should be analyzed by a mandatory environmental review.

An actual example of a road which was created long before environmental awareness and the science of road ecology and that negatively impacts natural resources, is Pine Mountain Road in Cook County, which I mentioned in my public hearing testimony on 5/31/19.

Because this road has current legal use by motor vehicles, I am assuming, but cannot be definitively certain due to the vague wording, that Pine Mountain Road, according to the proposed changes in Item B. would be considered an, “ existing corridor in current legal use by motor vehicles.” I will address this example of Pine Mountain road here again in more detail and add photos in attached documentation.

Pine Mountain Road was started as a Trail in 1875 called Cove Road and was a completed road on a 1916 Plat map of the area.

(Docs 10 & 11)

At the time it was created and subsequently expanded, the builders had no environmental concerns that its gravel bed crosses an exceptional stream with almost no buffer zone, nor that this stream is also a dedicated trout stream. There was also no concern that the road crosses, again with almost no buffer zone, a tributary that directly feeds into this exceptional stream or that it passes right next to wetlands or by a protected wild rice lake.

(Docs 12,13 & 14)

Any increase in traffic load of an added new motorized recreational use to Pine Mountain road, would increase the fugitive dust load and sedimentation pollution to these various water bodies along the road's edge. All of these streams, creeks and wetlands, drain into and contribute to the sediment and fugitive dust pollution load of Lake Superior.

Lake Superior is itself an outstanding value resource water with special protections that is now being monitored for sedimentation plume pollution. (Docs 15,16 and 17)

--Also to be considered is the case of historically low volume traffic roads that cross exceptional streams, skirt wetlands or cut through areas of outstanding biodiversity. Due to the low traffic volume, the impact is minimal, however if a new motorized recreational use is added, this impact could be significantly magnified and harmful to the natural resources, fish and wildlife, particularly if the added new motorized use were a designated route.

Therefore, adding a new motorized recreational use to an, " existing corridor in current legal use by motor vehicles", has the potential to significantly increase environmental damage and should undergo a mandatory environmental review.

Further, this proposed rule change in Item B. could allow for the creation of a route that is hundreds of miles long without any mandatory environmental review, by stringing together “ existing corridors in current legal use by motor vehicles ”, assuming this vague definition would include public roads and highways. Many of these roads, like Pine Mountain road, could have been built long before environmental concerns and never have received any form of environmental review. Or they could be roads in terrible disrepair and a significant threat to the environment.

The proposed changes in item B. could allow for a new motorized recreational use to be added to of some of the most degraded, environmentally damaging roads, without mandatory environmental review, thereby increasing the environmental damage already done by these roads to natural resources and aquatic species.

This would be a gross distortion of the spirit and intent of the mandatory environmental review for recreational trails. It would risk the significant potential for serious, unchecked environmental damage across hundreds of miles, potentially across the entire state, without any environmental review done to gauge the potential impacts on watersheds, aquatic and terrestrial life, invasive species management and threats to endangered species such as the Canadian Lynx, whose travel corridors could be near these roads.

One example of a road long in disrepair that could be added to a trail under the changes of Item B., without counting towards the 25 miles threshold as “ an existing corridor in current legal use by motor vehicles,” would be Mark Lake Road, in Cook County Mn.
(Doc 18)

This road would be considered, as I interpret it, “ an existing corridor in current legal use by motor vehicles”. To add a new motorized recreational use such as Off Road Vehicles (OHV) to this road, which could be done if the proposed changes to Item B. were made, has the potential to cause a significant increase in environmental damage by substantially increasing sedimentation to the waters at failed culvert areas from OHV traffic. The failed culvert shown here is on Mark Lake Road at Mistletoe creek, an exceptional stream (MPCA ranked) that feeds directly into Lake Superior. If the proposed change to Item B. were made, despite the evident potential for significant environmental damage, the new recreational motorized use could be added to this severely damaged road without a mandatory environmental review.

In summation regarding the proposed mandatory review rule changes to Items A. and B for recreational trails, I believe the changes are not necessary, not reasonable and not justified.

As presented, I maintain it is the EQB's responsibility as part of the executive branch under the Governor and in accordance with 116D.01. to keep the threshold for an environmental review at 10 miles. Further, that any new added motorized recreational use to an "existing motorized trail or an existing corridor in current legal use by motor vehicles" count towards an unchanged 10 mile threshold for mandatory environmental review for reasons cited.

To propose the changes in Items A. and B. based on the need to streamline the administrative process for regulatory efficiency, which, as shown, would be at the cost of protecting our environment, is in direct conflict with the responsibility of the EQB under 116D.01 and 116.D 02 Subdivisions 1 and Subdivision 2, item 1.

The proposed language change in Item B. does not make environmental review more efficient by adding clarity and specificity, but is unclear and vague and leaves the interpretation of the language up to the whim and caprice of an officer.

The statement that these changes are needed because the EAW and EIS categories were established in the 1980s and 1990s and do not reflect the modern regulatory system or project types is not germane to the discussion of recreational trails. These trails need the same, if not more oversight than they did in the 1980s and 1990s. I maintain that environmental protection dictates that due to the dramatic increase in recreational vehicle use, in conjunction with the statement in the 1982 SONAR that the degree of environmental impact is a function length, it is the EQB's responsibility under MEPA 116D.01 and 116D.02 to maintain the thresholds for mandatory environmental review at the 10 mile threshold established in the 1982 SONAR and re-stated in the 2004 Sonar.

It is the EQB's and court's responsibility to keep the Legislature in check, when passed legislation is in direct conflict with the long standing requirements of MEPA.

Thank you, Judge Schlatter, for your time and careful consideration of my testimony.

Dusan P. Schubert
15 July 2019

**Mandatory Category Rule Making Comments
DOCUMENTS**

1. Chapter 116D
2. 1982 SONAR excerpt
3. Forest-wide Travel Management Project
4. 1982 SONAR Recreational Trails
5. Monitoring Fugitive Dust Emissions from Off-Highway Vehicles
6. Lake Superior Streams Assessment, Phase One
7. Brook Trout statement
8. The Potential Effects of Forest Roads on the Environment and Mitigating their Impacts
9. Antidegradation Purpose
10. Pioneers in the Wilderness
11. 1916 Platt Map of Pine Mountain Road, Cook County, Mn.
12. Pine Mountain Road
13. Pine Mountain Road, Mud Creek
14. Pine Mountain Road, Wetlands
15. Lake Superior North Watershed Restoration and Strategy Management Report- 2018
16. Lake Superior North Watershed Restoration and Strategy Management Report- 2018
17. The Outside Impact Small Streams have on Lake Superior and Photo
18. Mark Lake Road, Cook County, Mn.

CHAPTER 116D

ENVIRONMENTAL POLICY

116D.01	PURPOSE.	116D.045	ENVIRONMENTAL IMPACT STATEMENTS; COSTS.
116D.02	DECLARATION OF STATE ENVIRONMENTAL POLICY.	116D.06	EFFECT OF EXISTING OBLIGATIONS.
116D.03	ACTION BY STATE AGENCIES.	116D.10	ENERGY AND ENVIRONMENTAL STRATEGY REPORT.
116D.04	ENVIRONMENTAL IMPACT STATEMENTS.	116D.11	REPORT PREPARATION.

116D.01 PURPOSE.

The purposes of Laws 1973, chapter 412, are: (a) to declare a state policy that will encourage productive and enjoyable harmony between human beings and their environment; (b) to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings; and (c) to enrich the understanding of the ecological systems and natural resources important to the state and to the nation.

History: 1973 c 412 s 1; 1986 c 444

116D.02 DECLARATION OF STATE ENVIRONMENTAL POLICY.

Subdivision 1. **Policy.** The legislature, recognizing the profound impact of human activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high density urbanization, industrial expansion, resources exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of human beings, declares that it is the continuing policy of the state government, in cooperation with federal and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state's people.

Subd. 2. **State responsibilities.** In order to carry out the policy set forth in Laws 1973, chapter 412, it is the continuing responsibility of the state government to use all practicable means, consistent with other essential considerations of state policy, to improve and coordinate state plans, functions, programs and resources to the end that the state may:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all people of the state safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- (3) discourage ecologically unsound aspects of population, economic and technological growth, and develop and implement a policy such that growth occurs only in an environmentally acceptable manner;
- (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever practicable, an environment that supports diversity, and variety of individual choice;
- (5) encourage, through education, a better understanding of natural resources management principles that will develop attitudes and styles of living that minimize environmental degradation;

- (6) develop and implement land use and environmental policies, plans, and standards for the state as a whole and for major regions thereof through a coordinated program of planning and land use control;
- (7) define, designate, and protect environmentally sensitive areas;
- (8) establish and maintain statewide environmental information systems sufficient to gauge environmental conditions;
- (9) practice thrift in the use of energy and maximize the use of energy efficient systems for the utilization of energy, and minimize the environmental impact from energy production and use;
- (10) preserve important existing natural habitats of rare and endangered species of plants, wildlife, and fish, and provide for the wise use of our remaining areas of natural habitation, including necessary protective measures where appropriate;
- (11) reduce wasteful practices which generate solid wastes;
- (12) minimize wasteful and unnecessary depletion of nonrenewable resources;
- (13) conserve natural resources and minimize environmental impact by encouraging extension of product lifetime, by reducing the number of unnecessary and wasteful materials practices, and by recycling materials to conserve both materials and energy;
- (14) improve management of renewable resources in a manner compatible with environmental protection;
- (15) provide for reclamation of mined lands and assure that any mining is accomplished in a manner compatible with environmental protection;
- (16) reduce the deleterious impact on air and water quality from all sources, including the deleterious environmental impact due to operation of vehicles with internal combustion engines in urbanized areas;
- (17) minimize noise, particularly in urban areas;
- (18) prohibit, where appropriate, floodplain development in urban and rural areas; and
- (19) encourage advanced waste treatment in abating water pollution.

History: 1973 c 412 s 2; 1986 c 444

116D.03 ACTION BY STATE AGENCIES.

Subdivision 1. **Requirement.** The legislature authorizes and directs that, to the fullest extent practicable the policies, rules and public laws of the state shall be interpreted and administered in accordance with the policies set forth in sections 116D.01 to 116D.06.

Subd. 2. **Duties.** All departments and agencies of the state government shall:

- (1) on a continuous basis, seek to strengthen relationships between state, regional, local and federal-state environmental planning, development and management programs;
- (2) utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; as an aid in accomplishing this purpose there shall be established advisory councils or other forums for consultation with persons in appropriate fields of specialization so as to ensure that the

Rulemaking, including rule amendments, must follow a process that is defined in Minn. Statute 14, the Administrative Procedure Act. The process requires public notification of the rulemaking and the proposed rule changes must be made available for public review and comment. Comments are considered and decisions made for the final version of the rules. Though an agency prepares the draft rules, the process is overseen by the Office of Administrative Hearings. The statute requires an open public process for preparing and amending agency rules.

The statute also requires that a rule amendment proposal include a Statement of Need and Reasonableness (SONAR), which explains the reasons for proposed rule changes. The SONAR also discusses such things as who will be affected, alternative methods for achieving the purpose of the rule amendment, and other points listed in statute.

The following excerpt from the SONAR prepared in 1982 will help understand the historical purposes of the environmental review program overall.

Excerpt from 1982 Statement of Need and Reasonableness (SONAR)

I. AUTHORITY

These rules are proposed to implement the 1980 amendments to the Minnesota Environmental Policy Act, Minn. Stat. Ch. 116D. Existing rules 6 MCAR § 3.021 through 3.032 are deleted in their entirety and are replaced by proposed rules 6 MCAR §§ 3.021 through 3.041. Existing rules 6 MCAR §§ 3.033 through 3.047 are amended to become 6 MCAR §§ 3.042 through 3.054. These sections contain minor revisions as indicated. Rules 6 MCAR §§ 3.055 and 3.056 replace the existing rule 6 MCAR § 3.025 G.

Specific authority to promulgate rules relating to the Environmental Review Program is granted under Minn. Stat. § 116D.04, subd. 5 (a) and Minn. Stat. § 116D.045. General rule-making authority is given the Environmental Quality Board in Minn. Stat. § 116C.04 and Minn. Stat. § 116D.

II. HISTORY OF ENVIRONMENTAL REVIEW IN MINNESOTA

The concept of environmental review was spawned in the late 1960s with the developing environmental conscience. Its purpose was to implement environmental protection as a matter of public policy and to utilize the Environmental Impact Statement (EIS) as a planning tool in the decision-making process. Environmental review does not of itself make decisions; rather it provides necessary information to governmental units which they can utilize to make environmentally sensitive decisions in the best interests of the public. It has a further purpose in allowing the public to participate in decisions that affect them. The intent is to prevent environmental degradation by wise and informed decisions.

Minnesota's Environmental Review Program was established by the Minnesota Environmental Policy Act (MEPA) of 1973. Companion legislation, found at Minn. Stat. ch. 116c, established the Minnesota Environmental Quality Board (EQB). Rules implementing the process were promulgated in 1974 and remained in effect until 1977. Under the initial process all decision-making authority was centralized in the EQB. The EQB decided on a case-by-case basis which projects were major actions with the potential for significant environmental effects.

United States
Department of
Agriculture

Forest
Service

December 2008



Environmental Assessment

Forest-wide Travel Management Project

Superior National Forest

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Duluth, MN 55808
(218) 626-4300
<http://www.fs.fed.us/r9/forests/superior/projects>

alternatives also have the potential to benefit some of the sensitive plant species that benefit from intermediate levels of disturbance. Alternative 4 would be the most desirable because it would have the least negative impacts on sensitive plants, followed by Alternative 2, Alternative 3, and Alternative 1.

3.11.7 Cumulative Effects

See Appendix B to the EA for a description of projects considered for cumulative effects along with resource-specific projects discussed below.

The BA and BE include specific cumulative effects analysis for each of the species or guilds analyzed. The following is a summary of the cumulative effects for all species.

Spatial framework: The analysis of cumulative effects considers the impact of past, present, and reasonably foreseeable future management activities on regional forest sensitive species on all land ownerships in the analysis area. Opportunities for consolidating off highway vehicle use on ownerships other than National Forest were included in this proposed action. Consultation with the State, Counties and tribes occurred (see Chapter 1 in EA) to try and mesh our travel planning as much as possible. Other agencies do have different regulations about seasonal use of motorized vehicles but overall, between public landowners, road miles open to motor vehicles declines.

Time frame: Cumulative effects analysis considers a 15 year period, which includes the accomplishments of the past 10 years, and reasonably foreseeable activities within the next 5 years. The next 5 years is a realistic timeframe for estimating what projects may be proposed in the vicinity.

Past impacts: The project area is highly fragmented because of timber harvesting, mixed ownership patterns, development, and road construction. The quantity and standard of roads has remained relatively stable in the last 5 years. Road density has stabilized, but the quality and standard of roads on the Superior has increased because of timber harvest and recreational activities. Increased road miles and road usage have lowered the amount of remote habitat available to species. Increased human access may result in disturbance during the breeding season, illegal shooting and trapping, introduced parasites and diseases, and competition with other species

Present impacts: Since 2004, many miles of road have been identified for decommissioning. Road decommissioning from previous resource management projects is making progress at reducing the road density, and consolidating road usage on the Superior National Forest.

Future impacts: Off highway vehicle use is expected to increase over the next 10 years, due to increasing public demand for this type of outdoor leisure activities. . The total Minnesota off highway vehicles registered has increased dramatically, from 56,706 in 1994 to 222,594 in 2004 (p. 33, Minnesota Department of Natural Resources 2005 OHV Study). As more land that is private is posted with no trespassing signs, more pressure is placed upon Federal, State, County, and other jurisdictions to designate trail routes for off highway vehicles. Although many species may benefit from the action alternatives on Federal Lands, the off highway vehicle project may shift the demand for access to State and County lands within the Superior National Forest. Forest Plan objective O-RMV-2 would allow up to 90 miles of designated off highway vehicle trails, some from this project and some from future projects that would be considered in future NEPA analysis.

See page 2

DOC 4

Appendix D

See page 2 →

TABLE D-1: MANDATORY EAW CATEGORIES: MINNESOTA DEPARTMENT OF NATURAL RESOURCES as RGU			
Mandatory EAW Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permits, Laws, Ordinances that may (or may not) apply
4410.4300 Recreational trails subp. 37	Recreational trails. If a project listed in items A to F will be built on state-owned land or funded, in whole or part, by grant-in-aid funds administered by the DNR, the DNR is the RGU. For other projects, if a governmental unit is sponsoring the project, in whole or in part, that governmental unit is the RGU. If the project is not sponsored by a unit of government, the RGU is the local governmental unit. For purposes of this subpart, "existing trail" means an established corridor in current legal use.	<p>The Minnesota Historical Society's State Historic Preservation Office (SHPO). The revisions would add two additional reasons or situations where no EAW would be required prior to the destruction of a property on the National or State registers of Historic Places.</p> <p>The present rules recognize two situations as not requiring preparation of the EAW. These both involve review of historic values through other established federal processes. It is now proposed to add another such situation, namely where the destruction will be reviewed by a certified local heritage preservation commission. The State Historic Preservation Office believes that review by such a commission gives adequate oversight over historic places without preparation of an EAW. To be certified, a local heritage preservation commission applies to SHPO, which reviews the application and local ordinance for consistency with nationwide standards established in the Code of Federal Regulations at the cited locations.</p> <p>The second situation proposed to be added is not a substitute form of review but rather has to do with the nature of the property proposed for destruction. In some cases, the historic place included on the National or State Register is an entire district rather than a single structure. In such districts, not all the properties actually have or contribute to the historic value of the district. A "non-contributing property" is a property located within the boundaries of a designated historic district but which itself is not historic and does not contribute to the historical attributes of the district as a whole. Often, non-contributing properties are buildings constructed many years after the period during which the historic buildings of the district were built. Sometimes these non-contributing properties are identified as being non-contributing in the historic place designation documents, but not always. It is proposed that the destruction of non-contributing properties not require preparation of an EAW if either they are identified as being non-contributing in the designation documents or if the State Historic Preservation Office reviews the matter and issues a determination that the property is non-contributing.</p> <p>(2004) This paragraph prescribes which governmental unit will be the RGU, which stands for "Responsible Governmental Unit," for preparing EAWs for the recreational trails for which review will be required under this subpart. Each mandatory category has an RGU designation listed for it in the appropriate subpart of part 4410.4300. The Department of Natural Resources (DNR) is named as RGU for all trail projects for which it is either the project constructor or the provider of grant-in-aid funds. This assignment is consistent with the general principles for RGU assignment at part 4410.0500 that (1) if a state agency will carry out a project it is the RGU (4410.0500, subp. 1) and (2) the RGU is the unit with the greatest responsibility for supervising or approving the project as a whole or has expertise that is relevant for the review (4410.0500, subp. 5, item B). Where grant-in-aid funds are being supplied to assist with a project the DNR must review and approve the plans for the project prior to entering into the grant agreement.</p> <p>This gives the DNR a strong degree of authority over the project. In addition, the DNR staff has expertise with the review of recreational trails that is likely to be greater than that available to a local unit of government that would be a sponsor for a grant-in-aid trail. Furthermore, assigning all grant-in-aid projects</p>	N/A
			Should category be modified, eliminated, or an existing permit or other federal/state/local law

DOC 4

D7

TABLE D-1. MANDATORY EAW CATEGORIES, MINNESOTA DEPARTMENT OF NATURAL RESOURCES, RGU

Mandatory EAW Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permits, Laws, Ordinances that may (or may not) apply	Should category be modified, eliminated, or an existing permit or other federal/state/local law
4410.4300 Recreational trails subp. 37 A	A. Constructing a trail at least ten miles long on forested or other naturally vegetated land for a recreational use other than snowmobiling or cross-country skiing, unless exempted by part 4410.4600, subpart 14, item D, or constructing a trail at least 20 miles long on forested or other naturally vegetated land exclusively for snowmobiling or cross-country skiing.	<p>to the DNR will promote more uniform review of all grant-in-aid projects regardless of where they take place. For those projects not constructed by the DNR or involving state grant-in-aid funds, but which will be sponsored by another unit of government, the sponsoring unit will be the RGU; this is consistent with the general principle of RGU assignment cited as #2 above. For all other projects, the RGU will be the local governmental unit, in keeping with the RGU assignment in other mandatory categories where the permitting responsibility is at the local level. It should be noted that there may be some private trail projects which require no governmental permits, and therefore would not be "governmental actions" under these rules and not be subject to Environmental Review at all.</p> <p>(2004) Item A would require mandatory preparation of an EAW for the kinds of trails named with the thresholds based on trail length. Item A covers construction of new trails (or extensions of existing trails) which do not follow the alignment of an existing trail. Except for winter uses, the threshold proposed for this category is 10 miles. For the named winter uses, the threshold is proposed to be twice as long, 20 miles, as these uses are generally considered to have lesser potential for environmental impacts due to the fact that frozen soil conditions and snow or ice cover greatly reduce the potential for physical environmental damage. Item A would only apply to trails crossing land that was now forested or otherwise covered with natural vegetation for a distance of at least 10 continuous miles. If a trail was to be partially on naturally vegetated land only the length on such land would be counted.</p> <p>Length was chosen as the primary threshold parameter in order to make the recreational trail categories analogous to the existing categories for linear-type projects, including electrical transmission lines (subp. 6), pipelines (subp. 7), and highways (subp. 22). As stated in the 1982 SONAR, linear projects "usually entail greater impact as a function of increased length." (pg. 119) Although different types of linear projects differ in the extent of their potential for various environmental impacts, generally speaking they all vary in accordance with project length. Specifically for recreational trails, while different types of trails or trail uses vary in their potential for impacts such as ecological damage, runoff and erosion, damage to water resources, and noise, the potential for these impacts will tend to increase with the length of the project simply because, all else being equal, a longer trail has more likelihood of encountering sensitive resources of whatever kind. Another benefit of using length as a surrogate for impact potential is that it is "use neutral." A number of commenters, particularly motorized use organizations, were very concerned about some trail users being "singled out" in the proposed rules, i.e., treated differently than other types of users. Using trail length as the threshold parameter avoids this concern. Finally, length is a basic parameter of trail design that is easy to determine in the early stages of design, promoting an early determination of the need for EAW preparation with accompanying planning efficiency.</p> <p>The thresholds of 10 and 20 miles were chosen for a number of reasons. Most fundamentally, for almost all types of projects covered by the existing mandatory and exemption categories there is a "gap" between the magnitudes of project that are exempt and the smallest projects for which review is mandatory. Following this principle (in the absence of any compelling reasons</p>	<p>Local: Permission to cross land Land alteration permit Site permit application WCA mitigation plan</p> <p>State: Construction stormwater general permit 401 certification Section 4(f) evaluation Special use permit for highway crossings</p> <p>Lease agreement State grant Public water work permit WCA mitigation plan SNA permit to cross & trail maintenance agreement</p> <p>Federal: 404 permit Federal grant</p>	<p>Summary: 4 EAWs have been prepared for project into effect in 2004. Two were for hiking trails, one OHV trail. Several potential environmental issues, regulated, were evaluated. Unregulated potential wildlife disturbance, and native plant community projects as a whole, so environmental review was effects of the whole project. Permits associated with authority, and many do not include a public review</p> <p>Recommendation: Maintain this EAW category.</p>

TABLE D-11. MANDATORY EAW CATEGORIES: MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)

Mandatory EAW Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permitting Laws, Ordinances that may (or may not) apply	Should category be modified, eliminated, or new existing permits or other federal/state/local law
4410.4300 Recreational trails subp. 37 B	B. Designating at least 25 miles of an existing trail for a new motorized recreational use other than snowmobiling. In applying items A and B, if a proposed trail will contain segments of newly constructed trail and segments that will follow an existing trail but be designated for a new motorized use, an EAW must be prepared if the sum of the quotients obtained by dividing the length of the new construction by ten miles and the length of the existing but newly designated trail by 25 miles, equals or exceeds one.	<p>not to), the EQB chose to set the mandatory EAW thresholds at some reasonable number of miles, rather than including trails of all lengths (as many commenters had advocated, at least for motorized trails). Further, the most common ratio of the sizes of exemption thresholds to mandatory EAW thresholds among the existing categories is 1:10. Following that reasoning, the proposed threshold of 10 miles for mandatory EAWs for most trails and the numerical exemption thresholds of (less than) 1 mile at items A and C of the proposed exemption categories are reasonable choices. Since snowmobiles and cross-country skiing have a lesser potential for impacts, doubling the threshold to 20 miles is a reasonable choice for those types of trails.</p> <p>Another reason for choosing 10 miles as the basic threshold number is that it makes sense when compared to the thresholds for the other linear-type projects in other subparts. The highway categories have a length threshold of 1 mile, pipelines, either 0.75 or 5 miles depending upon the nature of the product transported and other factors, and transmission lines, 20 miles. Most people would undoubtedly agree that recreational trails in general pose less potential for environmental impacts than most highway or pipeline projects, and somewhat more than electrical transmission line corridors (where there is little activity after construction is completed, little potential for impacts beyond the right-of-way, and less direct physical intrusion by the structures than from a continuous trail surface).</p> <p>One way to check on the reasonableness of proposed thresholds is to compare estimates of how many EAWs would result with the numbers of EAWs prepared due to other existing mandatory categories. The EQB recently examined mandatory EAW records from the 4-year period 2000-2003 to compare one category with another. The data from that analysis showed that during that time 570 EAWs were prepared due to the 35 existing EAW categories, an average of 143 per year. Only 10 of the 35 categories resulted in at least 5 EAWs per year and the median number was 1 EAW per year per category. Using the DNR's estimate from section III.A factor #5 of 3 EAWs per year likely to result from the proposed recreational trail categories, it appears that the number of EAWs likely due to the proposed thresholds would fall roughly mid-pack when compared to all 36 categories.</p> <p>(2004) Item B covers situations where a governmental unit is proposing a change in authorized uses on an existing trail to allow use by a form of motorized recreational vehicle not previously allowed to use the trail. The threshold is proposed as 25 miles, two and one-half times the main threshold of item A, on the basis that the potential for environmental damage is diminished by the fact that a trail already traverses the route. This category is proposed to exclude the designation of snowmobile use, which instead is proposed for an exemption (see the section later on Exemptions for the rationale).</p> <p>This provision is proposed to deal with the likely common occurrence where a planned trail will include segments of new alignment and also segments with new use designations on existing trails. In such cases, how can it be determined if the mandatory review thresholds are exceeded? The solution proposed is borrowed from existing subparts of 4410.4300. At subparts 19 and 32, residential developments and mixed residential and commercial projects a</p>	<p>Local: Approval for bridges Lease amendment</p> <p>State: Construction stormwater general permit 401 certification State trail plan amendment State funding Public water work permit WCA mitigation plan</p> <p>Federal: 404 permit</p>	<p>Summary: 1 EAW has been prepared for a project into effect in 2004. Currently, many trail projects went through the legislatively mandated designations the State Forests with respect to motor vehicle use Chapter 128, Article 1, Section 167, Subdivision 6100.1950. Trail segments where the proposed trail included in the mileage for determining whether it reached or exceeded. In addition, mileage of OH outside of state forests is not included in the miles have recently been proposed that would require the DNR still believes the issues identified in the remain valid.</p> <p>Recommendation: Retain this EAW category; for new types of motorized trail use are calculated. / uses on abandoned trail grades toward Item 37B it</p>

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TABLE D-1. MANDATORY EAW CATEGORIES, MINNESOTA DEPARTMENT OF NATURAL RESOURCES, RGU

Mandatory EAW Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permits, Laws, Ordinance that may (or may not) apply	Should category be modified, eliminated, or an existing permit or other federal/state/local law
4410.4300 Recreational trails subp. 37 C	C. Paving ten or more miles of an existing unpaved trail, unless exempted by part 4410.4600, subpart 27, item B or F. Paving an unpaved trail means to create a hard surface on the trail with a material impervious to water.	similar arithmetic operation is prescribed for determining if review is mandatory. Here is an example of how this method would work: suppose an ATV trail is proposed with a total length of 18 miles, 8 on new alignment and 10 as a designation of an existing snowmobile trail for ATV use. To determine if an EAW is mandatory divide 8 by 10 (quotient = 0.8), and 10 by 25 (quotient = 0.4), then add the quotients (0.8 + 0.4 = 1.2). Since the sum of 1.2 exceeds 1, review is mandatory for this project.	Local: Roadway utility permit WCA mitigation plan State: Construction stormwater general permit 401 certification State grant Public water work permit Federal: 404 permit Federal grant	Summary: 1 EAW has been prepared for a project into effect in 2004. In that project, DNR found that had minor environmental effects because environment already occurred and project-specific disturbance compaction had already occurred. Although few would require preparation of an EAW under this it identified in the 2004 SONAR that created this category. Recommendation: Maintain this EAW category, but on abandoned railroad grades.
4410.4300 Recreational trails subp. 37 D	D. Constructing an off-highway vehicle recreation area of 80 or more acres, or expanding an off-highway vehicle recreation area by 80 or more acres, on agricultural land or forested or other naturally vegetated land.	(2004) Item D deals with recreation areas for off-highway vehicles. Such areas would include an intensive network of trails as well as special events areas designed especially for various types of off-highway vehicles. Because of the concentrated network of trails, it is appropriate to provide a separate mandatory EAW category for recreation areas, and to base the threshold on acreage rather than trail length. Two thresholds are proposed, one for "undisturbed," naturally vegetated land or agricultural land and another for land that either is not naturally-vegetated or agricultural, or has been previously disturbed to a great extent by human activities.		Summary: No EAWs have been prepared for a project into effect in 2004. The DNR still believes that created this category remain valid. Recommendation: Maintain this EAW category.
4410.4300 Recreational trails subp. 37 E	E. Constructing an off-highway vehicle recreation area of 640 or more acres, or expanding an off-highway vehicle recreation area by 640 or more acres, if the land on which the construction or expansion is carried out is not agricultural, is not forested or otherwise naturally vegetated, or has been significantly disturbed by past human activities such as mineral mining.	(2004) The most likely disturbed areas to be used for recreation areas are former mine sites, so the rule explicitly lists metallic and non-metallic mining as past human activities making land suitable for the "disturbed" classification. The only existing recreation area for OHVs was established by the DNR on a former mine site near Gilbert and another similar area near Virginia has been authorized but not yet built. For non-naturally-vegetated lands, agricultural, or disturbed lands, a much higher threshold is appropriate and thus 640 acres was chosen; this provides a 1:8 ratio and sets the threshold equal to the common land measure of one section.		Summary: No EAWs have been prepared for a project into effect in 2004. The DNR still believes that created this category remain valid. Recommendation: Maintain this EAW category.
4410.4300 Recreational trails	F. Some recreation areas for off-highway vehicles may be constructed partially on agricultural naturally vegetated land and partially on land that is not agricultural, is not forested or otherwise naturally vegetated.	(2004) Since it is likely that recreation areas could be proposed on lands subject to both thresholds, the same arithmetic method for determining if review is mandatory as is proposed at items A and B is proposed to be used here as well.	Local: Land use zoning approval State: Construction stormwater general	Summary: 1 EAW has been prepared for a project into effect in 2004. Potential environmental issues regulated, were evaluated. Unregulated potential wildlife disturbance, native plant community impacts No single permit regulates these types of projects

TABLE D-1. MANDATORY EAW CATEGORIES, MINNESOTA DEPARTMENT OF NATURAL RESOURCES, as RCU

Mandatory EAW Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permits, Laws, Ordinances that may (or may not) apply	Should category be modified, eliminated, or unexisting permits or other federal/state/local law process.
subp. 37 F	or has been significantly disturbed by past human activities. In that case, an EAW must be prepared if the sum of the quotients obtained by dividing the number of acres of agricultural or naturally vegetated land by 80 and the number of acres of land that is not agricultural, is not forested or otherwise naturally vegetated, or has been significantly disturbed by past human activities by 640, equals or exceeds one.		<p>permit</p> <p>401 certification</p> <p>State funding</p> <p>Public water work permit</p> <p>WCA mitigation plan</p> <p>Federal:</p> <p>404 permit</p>	<p>the only opportunity to analyze effects of the who category have gaps and overlaps in authority, and process.</p> <p>Recommendation: Maintain this EAW category.</p>

TABLE D-2. MANDATORY EIS CATEGORIES, MINNESOTA DEPARTMENT OF NATURAL RESOURCES, as RCU

Mandatory EIS Category	Category Text	Intended Historical Purpose (SONAR)	Potential Local, State, Federal Permits, Laws, Ordinances that may (or may not) apply	Should category be modified, eliminated, or unexisting permits or other federal/state/local law process.
4410.4400 Underground Storage subp. 7 A	Underground storage. Items A and B designate the RCU for the type of project listed: A. For construction of an underground storage facility for gases or liquids that requires a permit pursuant to Minnesota Statutes, section 1031.681, subdivision 1, paragraph (a), the DNR shall be the RCU.	(1982) This category is proposed because this type of project is new and largely untested, is very large in scope, has the potential for groundwater contamination and serious human health impacts and is very controversial. Minn. Stat. § 84.57 mandates a permit for the displacement of groundwater by the underground storage of gases or liquids under pressure. The Department of Natural Resources (DNR) is the responsible permitting agency. No specific rules have been promulgated regarding this authority. One facility of this type has been constructed in Minnesota. No EIS was prepared for that facility. The DNR is currently processing a second application. An EIS has been ordered on the proposed facility. The primary environmental effects of concern on this type of project are groundwater quantity and quality impacts. The lack of a formal process for citizen comment further documents the need for environmental review of this type of activity.	<p>State:</p> <p>Minnesota Statutes, section 1031.681</p> <p>Minnesota Rules, part 6115.0130</p> <p>Minnesota Statutes, chapter 216B</p> <p>Minnesota Rules, Chapter 7851</p>	<p>Recommendation: Maintain this EIS category.</p>
4410.4400 Underground Storage subp. 7 B	B. For construction of an underground storage facility for gases or liquids, using naturally occurring rock materials, that requires a permit pursuant to Minnesota Statutes, section 1031.681, subdivision 1, paragraph (b), the DNR shall be the RCU.	(1982) Minn. Stat. § 84.621 mandates a permit for the storage of gases or liquids, other than water, in natural rock formations underground. These formations could be naturally occurring or the result of the mining of rock material to create a storage site in a rock formation. No facilities of this type currently are found in Minnesota and no formal proposals have been presented. It is known, however, that the concept of mining rock to create an underground cavity in the bedrock is being discussed. The purpose of the cavity would be to potentially store petroleum products. The primary environmental concerns associated with such an activity would be related to groundwater quality and safety concerns. The DNR is the responsible permitting agency for this type of activity. No specific rules have been promulgated regarding this authority. The lack of a formal process for citizen comment further documents the need for environmental review of this type of activity.	<p>State:</p> <p>Minnesota Statutes, section 1031.681</p> <p>Minnesota Rules, part 6115.0130</p> <p>Minnesota Statutes, chapter 216B</p> <p>Minnesota Rules, Chapter 7851</p>	<p>Recommendation: Maintain this EIS category.</p>
4410.4400 Metallic mineral mining and	Metallic mineral mining and processing. Items A to C designate the RCU for the type of project listed:	(1982) Extensive evaluation of radioactive deposits has been elevated to a mandatory EIS category pursuant to 6 MCAR § 3.039 G.I, because of the increased potential for adverse environmental impacts and human health impacts. The 1,000 ton threshold was recommended by the DNR as a feasible		<p>Summary: Review of recently prepared EISs indicates, including some that are not directly regulated impacts included wildlife habitat effects, native plant effects to a number of natural resources and environmental</p>

Monitoring fugitive dust emissions from off-highway vehicles traveling on unpaved roads and trails using passive samplers

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Abstract Vehicles traveling on dry, unpaved roads generate copious quantities fugitive dust that contributes to soil erosion, and potentially threatens human health and ecosystems. The purpose of this study was to develop a low-cost technique for monitoring road dust that would enable land managers to estimate soil loss. The “sticky-trap” collectors developed were evaluated at the Turkey Bay off-highway vehicle (OHV) riding area on the Land Between the Lakes National Recreation Area, in western Kentucky. The

results showed that the dust plume created by vehicle traffic was heterogeneous: larger particles were in the lower part of the plume and deposited closer to the source, smaller particles were carried higher in the plume and traveled at least 100 m away from the source. Collection of particles parallel to the source was also heterogeneous, suggesting that measurements taken at a single point may not be appropriate for estimating erosion losses. Measurements taken along two trails indicate that when large numbers of riders are present, dust concentrations may reach unhealthful conditions for riders, but that it is unlikely that fugitive dust is harming native vegetation, given frequent rainfall. The study demonstrated that OHV traffic contributes to substantial erosion of roadbeds because of aeolian transport.

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Keywords Fugitive dust · Particulate air pollution ·
Soil erosion · Aeolian erosion

Introduction

Fugitive dust created by recreational off-highway vehicles (OHV) is an increasingly serious problem for land managers. Recreational traffic increases maintenance costs for critical access roads, accelerates erosion and run off, damages ecological structure and function, and can threaten human health. But the consequences of OHV traffic are quite site-specific,

often influenced by weather conditions and can vary widely depending on the vehicle itself and the driving behavior of the operator (Etyemezian et al. 2003; Reheis and Kihl 1995). Before effective control measures can be implemented, land managers need a clear understanding of how much dust is generated under given conditions, and how far dust is migrating from the source.

Off-highway traffic on unpaved roads clearly disturbs the roadbeds, loosening the surface increasing the potential of surface erosion during rain events, and aeolian transport when it is dry. Erosion of road surfaces during rain not only damages the road, but also can lead to siltation of streams and wetlands, harming habitat, degrading water quality, and potentially impacting drinking water resources. Aeolian transport of dust during dry spells leads to accumulation of dust on roadside vegetation, which can impair foliar function by reducing photosynthetic capacity and gas exchange (Farmer 1993; Grantz et al. 2003). Fugitive dust also damages foliage by abrading surfaces reducing the integrity of the cuticle boundary (Eveling 1986). And clouds of dust are irritating to human lungs; prolonged exposure may lead to long-term impairment of pulmonary capacity.

Adequate quantification of aerial migration of dust created by OHV activities is often lacking. In part, because atmospheric monitoring techniques for particulate pollutants generally focus on the fine particulate fraction known to impact human health, and because monitoring methods for human health usually entail expensive equipment that do not yield spatial resolution of source-sink relationships. A 1983 Forest Service estimate of aeolian erosion was 564 kg/km (1 ton per mile) in 1 year for one vehicle, traveling once a day on an unpaved road (Frazer 2003). An annual rate of soil loss at 300 kg/ha (300 lb/ac) for forested land is considered normal (Munsell 2004).

This study was designed to measure the quantity of soil displaced by aeolian erosion due to vehicle traffic. The goal was to understand the relationship between vehicle use intensity and dust creation. The amount of dust generated was determined by weight using simple sticky-trap devices developed for monitoring fugitive dust. Atmospheric particulate loads relevant to human health were measured using electronic instruments for PM_{2.5}, and visualization of particles was conducted using scanning electron

microscopy (SEM). Portable weather stations were used to measure wind speed and direction, temperature and relative humidity at the test sites.

Secondary objectives were to evaluate the effect of dust accumulation on native vegetation, and the potential for impacts to human health by suspended particles. For these questions leaf samples were collected and viewed by SEM to determine damage to cuticle surface and interference with stomata opening. Portable electronic particulate monitors were deployed at the two test sites to quantify atmospheric concentrations of particles less than 2.5 μm – the US Environmental Protection Agency standard for damage to respiratory tissues.

Methodology

Site description

The Turkey Bay OHV area is part of the Land Between the Lakes (LBL) Recreational Area in western Kentucky (Fig. 1). The OHV area, roughly 688 ha (1,700 acres), has been set aside for use by any operator of an OHV. The area was originally designated by the Tennessee Valley Authority in 1975 and has been operated as an open riding (riders were not restricted to designated trails) area ever since. The USDA Forest Service acquired the property in 1999. Under Forest Service guidelines, the area must be managed for preservation of the resource in addition to recreation. Changes in, and increases in usage have left the area severely scarred and impacted. Impacts include severely denuded and eroded hillsides, loss of leaf litter and topsoil, compacted soils, heavily disturbed and dead flora, and dust everywhere.

Two test sites were chosen. The first site was along a broad main trail close to the entrance station (labeled "A" on Fig. 1). The trail was bordered on the north side with woods, and on the south side with an open field. The second site (labeled "B" on Fig. 1), was about 1 km further into the trail network where the trails are narrower. The second site (referred to as the "tunnel") was bordered by dense forest vegetation on both sides and a nearly enclosed canopy. The trails ran north-south therefore the sampling grids were on the east and west sides of the trail. The sampling transects were established along the edges of the trails

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some North Shore streams, only one of those sites was field evaluated in this study. All sites and their adjective BEHI ratings are illustrated in Figure 47.

5.1.4 BANK AND BLUFF SOILS ASSESSMENT

The available soils data along the North Shore is quite generalized and the published quaternary geology mapping of the North Shore has only progressed as far as Castle Danger. Beyond Castle Danger, published maps are not accurate enough to describe local variability in geomorphic conditions that would impact erosion potential of stream channels. Furthermore, soils data is also limited to broad categories. To compare existing soils data to actual field conditions, soil samples were collected from streambanks and bluffs along North Shore streams and were analyzed in the lab by hydrometer and sieve analysis. Sites sampled had a wide range of distribution of particles sizes (Table 12). Of particular note was the high clay content of the sample taken from the Knife River bluff. This sample was collected from a location that overlaps with the broad area delineated as having predominantly red lacustrine sediments.

6.0 FIELD ASSESSMENT OF ROAD IMPACTS ON SEDIMENT SUPPLY

Although anthropogenic stress as determined by SUMREL scores was very low for most subcatchments of the North Shore, SUMREL scores were elevated in most subcatchments due to the presence and density of roads. To address the potential impact of roads on sediment delivery to Lake Superior tributaries, we examined the extent and hydrologic connectivity of roads and streams, the contribution of roadside erosion on sediment availability and the localized effects of stream-road crossings on stream channel stability. Due to the high density of roads and impervious surfaces around the City of Duluth, our analysis was directed at North Shore catchments outside of this urbanized area. The following presents a summary of the study findings (see Appendix K for the full report).

6.1 ROAD-STREAM CONNECTIVITY ANALYSIS

Within the transportation network high risk areas for increased sediment and fluvial conveyance exists for roads in close proximity to streams, especially roads draining to ditches which drain directly to streams. This is especially true for all road-stream crossings which serve as a direct connection of roads to streams (Croke et al., 2005). —Dutton, 2012.

GIS analysis of stream-road layers was conducted to examine the impact of roads on channel network extension. As with methods outlined by Miller (2010), this study quantified channel network extensions resulting from the proximity of roads to streams, in addition to the areas in which they intersect. To do this, a modified roads layer was developed which consisted of a MnDOT roads base layer and a US Forest Service (Superior National Forest) roads layer. The modified layer was overlaid with buffered stream layers (USGS NHD hydrography layer, 30m resolution) to evaluate roads within close proximity to streams. Stream buffer widths used to determine proximity were 10, 50 and 100-ft, to account for St. Louis County setback requirements (Dutton, 2012). The length of road intersecting these layers was considered an extension of the stream network and was added to existing stream lengths to evaluate changes in drainage density.

In total, 1346 stream-road intersections were identified using the GIS analysis and over 3485 miles of roads were found to be within 100ft of North Shore streams (Table 13). Together, the intersection of these features and their proximity to one another resulted in a drainage density increase of 1.5% when channels were buffered at 10ft widths and upwards of 9.5% when streams were buffered at 100ft widths.

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

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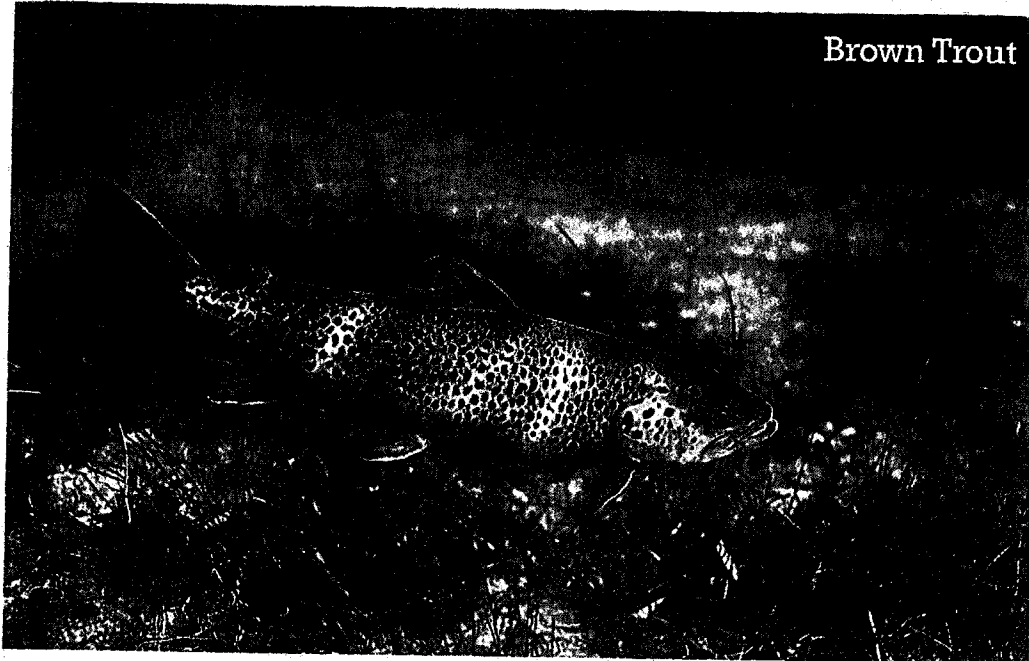


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Brown Trout

Photo by Erik Engbretson

Brook Trout and Brown Trout

Both brook trout and brown trout are found in many streams in Wisconsin, and require cold, clean water to survive. Both species are sensitive to pollution and low oxygen conditions. A study conducted on 33 coldwater streams in Wisconsin and Minnesota found that when impervious surfaces covered more than 11% of a watershed, trout were eliminated from streams.⁸



Brook Trout

Photo by Erik Engbretson

The brook trout is the only trout species native to Wisconsin's waters. Part of their diet consists of aquatic insects and small fish, whose populations are negatively impacted by increased runoff and sedimentation.

The Potential Effects of Forest Roads on the Environment and Mitigating their Impacts

Kevin Boston¹

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Abstract Forest roads are a necessary element for accessing forestry resources, but their impact on the environment can be significant. Forest roads can cause a variety of impacts on local wildlife that may lead to extirpation: facilitating the spread of invasive organisms, causing death or harm by vehicle strikes, and changing the behavior of animals to their detriment. Roads create improved access to forests, which can increase predation rates from hunters. Animals may move to avoid traffic noise, increasing their vulnerability to predation by other animals. One of the most significant impacts of forest roads is on water quality, through both catastrophic and chronic sources of water pollution, primarily from sediment. While it is not the case that every road will cause any or all of these impacts, for those that do, mitigation measures can be used to lessen these negative effects. These mitigation measures must begin during the location phase of the road and should continue through construction, use, and maintenance of the roads. Application of these mitigation measures allows forest managers to minimize the impacts from their forest roads when necessary.

Keywords Forest roads · Environmental impacts · Mitigation measures

This article is part of the Topical Collection on *Integrating Forestry in Land Use Planning*

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Introduction

The existence, development, and maintenance of forest roads have both positive and negative effects. Many of the benefits are generated from improved access to both extractive and non-consumptive resources that are produced from our forests. Non-consumptive resources include access to hunting, camping, wildlife viewing, and general site seeing—all of which use forest roads.

Improperly designed, constructed, or maintained forest roads can have a significant impact on the environment. Roads can be vectors for the spread of diseases or noxious weeds. They can both directly and indirectly harm terrestrial wildlife. Perhaps the largest impact from forest roads is on water quality, through both chronic and acute deposition of sediment that can limit the beneficial uses of water and harm aquatic organisms in waters that originate from forests. Many of these impacts can be minimized through the adoption of mitigation measures that change the manner in which roads are designed, built, maintained, and used. These mitigation measures might result in additional costs but can lessen the environmental impacts from forest roads.

This paper will describe both the benefits and impacts that can occur from forest roads and will describe mitigation measures to lessen the damage forest roads cause. The goal is to provide a review of mitigation opportunities to forest road managers, in order to assist them in lessening the impacts from their forest roads when they occur as well as promoting sustainable management of forests. The paper will primarily focus on examples from North America, as that has been the source of much of the research cited, but will occasionally use international examples where possible and applicable. The intention is not to suggest that all roads produce all of the outlined impacts, but to provide a description of some common impacts that occur from forest roads,

DOC 9

08/10/16

REVISOR

CKM/JC

AR4030

2.1 [For text of items EE to HH, see M.R.]

2.2 [For text of subps 4 to 10, see M.R.]

2.3 **7050.0250 ANTIDegradation PURPOSE.**

2.4 The purpose of the antidegradation provisions in parts 7050.0250 to 7050.0335 is
2.5 to achieve and maintain the highest possible quality in surface waters of the state. To
2.6 accomplish this purpose:

2.7 A. existing uses and the level of water quality necessary to protect existing uses
2.8 shall be maintained and protected;

2.9 B. degradation of high water quality shall be minimized and allowed only to the
2.10 extent necessary to accommodate important economic or social development;

2.11 C. water quality necessary to preserve the exceptional characteristics of
2.12 outstanding resource value waters shall be maintained and protected; and

2.13 D. proposed activities with the potential for water quality impairments
2.14 associated with thermal discharges shall be consistent with section 316 of the Clean Water
2.15 Act, United States Code, title 33, section 1326.

2.16 **7050.0255 DEFINITIONS.**

2.17 Subpart 1. **Applicability.** For purposes of parts 7050.0250 to 7050.0335, the
2.18 following terms have the meanings given in this part. Terms in parts 7050.0250 to
2.19 7050.0335 that are not specifically defined in applicable federal or state law shall be
2.20 construed in conformance with the context, in relation to the applicable section of the
2.21 statutes pertaining to the matter and ~~current~~ professional usage as of the effective date of
2.22 this part.

2.23 Subp. 2. **Agency.** "Agency" has the meaning given under Minnesota Statutes,
2.24 section 115.01, subdivision 2, unless otherwise specified.

2.25 Subp. 3. **Applicant.** "Applicant" means a person requesting a control document.

DOC 9

DOC 10

Pioneers in the wilderness: Minnesota's Cook County, Grand Marais, and the Gunflint in the 19th century
by William Raff 1988

pg. 127

Pine Mountain Road was part of a road called Rove Lake Road built by one of the founders of Grand marais, Henry Mayhew.

1916 roads and Plat maps

John Borchert U of MN Library map section. 1916 roads and Plat maps.
http://geo.lib.umn.edu/plat_books/stateofmn1916/reference/map00898.jpg

DOC 10

"Saganaga Lake runs through this town." Perhaps it ran from Rush Lake west through Granddad, along the creek to Long Island Lake, thence north.¹²

The comments Davis wrote in 1884, and reference to a good map will surely confirm the opinion that the "Saganaga Trail" mentioned in these Townships 1, 2, and 3, could not have been a road useable in summer (except as a canoe route). No doubt it would be a mistake to think of this trail as any kind of predecessor to the Gunflint Trail.

The combined effects of early trading posts, Indian trappers, mineral prospectors—the search for roads has certainly been fruitless, if not entirely pointless. Thus far, the only sensible conclusion must be: there were no developed, rational, overland trails—or roads—from the Gunflint-Saganaga area to the Shore at Grand Marais in that early period.

While it is clear that a number of Indian trappers and many prospectors prowled the mid-Trail area during the 1880s and 90s, there apparently were no homes or permanent residents anywhere between the Maple Hill homesteads of Christian and Elias Eliason (their claims were dated 1890) and the far north area of Gunflint Lake. The only possible exception to this generalization was the log cabin of John Miller near Poplar Lake, as noted in 1884 by surveyor Davis; this was probably John M. Millar, the first Auditor of Cook County. However that may be, it is unlikely that "Miller" continued in that location for long. There are no reminiscences, newspaper articles, or records of any kind that indicate that anyone lived there, or anywhere, indeed, in the mid-Trail region. Even during and after the building of the County Wagon Road north of the 24-mile post cut-off to Rove Lake, in 1893, there is no evidence that there was any cabin, homestead, or established stop-over to relieve the no-man's-land wilderness between Maple Hill and Gunflint Lake.

But, there was indeed an overland road, built in the late 1870s. Starting at Grand

Marais near the present Catholic Church, it wound up Maple Hill, passed on the west side of the present site of the Maple Hill Church, continued north about one mile east of Devil's Track Lake; north, passing a half-mile east of Little Clearwater Lake (now Binagami); continuing north, it passed on the lower east slopes of Pine Mountain; north following approximately the present Gunflint Trail route; over the North Brule; passing one-quarter mile east of Swamper Lake (not named then, or even by 1926); northwest to the 24-mile post near the western tip of Carlton Lake (now East Bearskin); continuing northwest to the west end of Aspen, turning there to the northeast, passing the western tip of Jocko Lake (now Flour); east of Hungry Jack, the east end of Bear Skin; then northeast to the west end of Emby Lake (now Clearwater); north one mile to the eastern tip of Daniel's Lake; finally, northeast to the eastern end of Rove Lake. There in the 1870s was a trading post!¹³

None of the early travelers associated with the French or the English periods of the fur trade had ever mentioned a post or settlement on that little lake. Nonetheless, it must have become a rather important trading center, for its existence was the cause of the road being built. But, when was it actually built? What were the exact circumstances? A description of the trail, or road?

Because Cook County's Board of Commissioners was not functioning until 1882, one searches the Minutes of the Lake County Board; but in the Minutes of their meetings one discovers nothing about the Rove Lake road. Nevertheless, there is a considerable amount of other testimony; consequently, there need be no doubt that it did exist during the 70s.

In 1929, one of Cook County's early-20th century pioneers, Dr. Frank B. Hicks, wrote a lengthy newspaper article about the origins of white settlement in Grand Marais. Quite naturally, he wrote a great deal about that prospecting and trading entrepreneur, Henry Mayhew. Relevant for this study is his comment that Mayhew "established

Note:
Binagami
is on
the
current
day
Pine
Mountain
Road

tents and wigwams used by a population that fluctuated between extremes depending upon the seasons of the year. Indeed, despite the claims as to the size of the place (grossly inflated, probably by Mayhew himself), there can be little doubt that it was in operation only during the winter fur-buying seasons.

During the summer of 1978, the sharp old-timer, Charlie Boostrom, Sr., clearly recalled that during his many years of hunting and trapping in the vicinity of Rove Lake, he had never seen any kind of buildings there that could have served a town of 200 Indians, traders and prospectors; he scorned the idea.

Seeking additional information about this little town on Rove Lake, it is possible to turn again to the notes of those hardy men who surveyed the area, slogging through swamps, battling bugs, climbing cliffs, suffering the bitter cold!

Township 65 North Range 1 East, is the one which contains Rove, Watap and Clearwater Lakes. Some disappointment is encountered, however, when the notes of the surveyors, Thurston and Kindred, are consulted; they explained they had not actually been in the Township because of the untimely severity of the winter. Nevertheless, on November 26, 1876, they wrote: "This township embraces the division of waters, on the height of land. In Mountain Lake the water flows southeast into Superior, and from Rove Lake it flows into Rainy River." (The surveyor erred in this. The waters from Rove also flow into Superior via Arrow Lake and Arrow River. The height of land is between North and South Lakes). Had they been able actually to survey the area on the ground, they certainly would not have made this obvious error; moreover, they then would have written a commentary on Mayhew's trading post.

Although the comment of Thurston and Kindred is disappointing, some information about the road is given in the reports of other surveyors three years later.

Township 63 North, Range 1 East, was surveyed by H. P. Lund and C. Davis in September, of 1879. On the 3rd of the month they wrote, "The road from Grand Marais to Rove Lake traverses the township North and South near the center." Today, the intersection of the Gunflint Trail and the Greenwood Road is very close to the exact center-point of this Township.

Township 62 North, Range 1 East, was surveyed by the same Lund and Davis during the same month of 1879. On the 17th they commented: "The Grand Marais and Rove Lake road traverses the W. portion of the town from North to South." For convenience, it should be recalled that Elbow Lake is near the center of this Township; the present Gunflint Trail crosses the southeast quarter and extends north along the west border.¹⁷

Reading these two comments, it is apparent that the road, generally, followed the old Gunflint Road route, but considerably to the west of the present Trail, at least to a point one mile north of the present bridge over the South Brule River.

Certainly it is unfortunate that Lund and Davis were the only surveyors to comment on the road to Rove Lake; yet, there are maps available that do show the route in adequate detail.

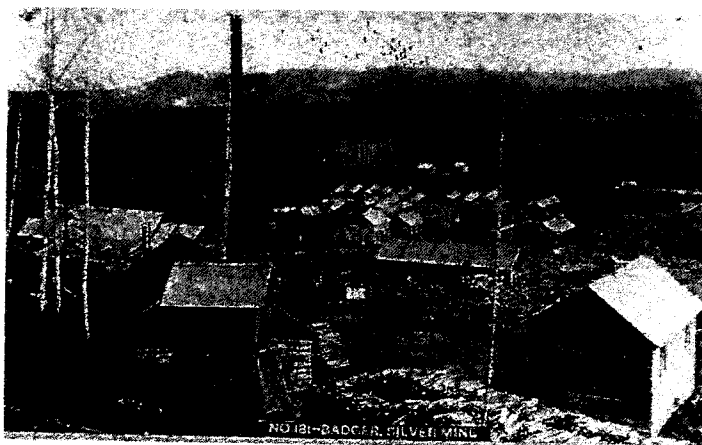
Charlie Boostrom, a pioneer of the mid-Trail area and builder of Clearwater Lodge, has made a number of pertinent comments about the old road which once passed so near his main lodge building. Although Charlie first came to the area in 1910, by which time the road had not been used for many years, he recalls a number of remarks about that trail made by men who were old-timers when he arrived. Surely correct in stating that it was the oldest County road in the area, they told Charlie that teams of oxen had once been used to haul freight sleds, or small tote sleighs, on the route during winters. Moreover, some of the old men recalled that when Mayhew operated the post, it was always possible for a man to earn some extra money backpacking (or by dog sled or by pulling a toboggan)

trade goods to Rove, or packs of furs down to Grand Marais! According to Boostrom's informants, the road even had milepost markers erected its entire length!

Exactly where the trading post was located on Rove Lake is somewhat unclear. Charlie Boostrom asserts that it was located on the Canadian shore, at the extreme eastern tip of the lake, on the shallow narrows between Rove and Watap. And Ben Ambrose, another pioneer woodsman, clearly remembers seeing the building ruins on the Canadian side, as his friend, Charlie, recalled. Unfortunately, the few records do not specify the exact site and, as we will see, even the best of maps are ambiguous about the location.¹⁸

There is no doubt at all that Henry Mayhew, the fur-trading businessman, was operating posts at both Rove Lake and Grand Marais. Hiring crews of Indians he cut out and developed the first overland trail joining the North Shore to the border lakes. Obviously, it was not a highway suitable for automobiles (in 1875-76!), or even for horses or oxen pulling wheeled wagons; rocks, stumps, mud, roots, and deadfalls would, almost certainly, have made such usage impossible. However, it is reasonable to assume it was entirely adequate as a hiking trail or for winter use for men backpacking on snowshoes or with dog sleds or toboggans, or even oxen hauling large sleds.

While his business was operating on a modest level, Mayhew, the prospector, was continuously engaged in his search for valuable minerals; as we will see further, this search involved his attentions in all parts of the County. Surely his eagerness was sustained over the years by the frequent reports in Duluth newspapers about diggings at Silver Islet, up on the Canadian shore. But, in 1882, news of even more dramatic import came to Grand Marais: nearby Port Arthur had suddenly become the "Silver Gateway" to the northwest! Great discoveries in the Whitefish Lake area! Significant finds at Silver Mountain, Crown Point, Rabbit Mountain. Huge mines were opened! Port Arthur quickly became a boom town,



Courtesy of the Thunder Bay Historical Museum.

reaching a population of 5,000 by the end of 1885! Because the silver area was inaccessible except by primitive wagon roads, the Thunder Bay Colonization Railway was planned in 1882. Actual construction began within two years! The silver boom continued in the 80s, reaching "dizzy heights" by 1888.¹⁹

What fabulous, welcome news for a man who had been prospecting since before the Civil War, for one who had an operating trading post on the border a mere 16 miles as the crow flies from the new silver fields! Confident that the silver-bearing geological formations of northern Cook County were similar (if not identical) to those of the Silver Mountain region, Mayhew would have been a fool if he had not made plans to improve all his facilities; plans had to be made to take advantage of the expected discoveries closer at hand!

What could be more natural then, that he soon turned to the Cook County Board of Commissioners for assistance in upgrading his road to the border? After all, he was Chairman of the Board; persuading his like-minded colleagues should not be too difficult.

No one should be amazed, therefore, that the County Board went along with road improvement projects from 1884, as soon as requests were made. On at least ten occasions during the next four years, the Commission approved and paid the bills for brushing out (an ever-recurring problem, of course), re-routing, widening and bridge-building—all this before the end of 1888!

And, all before Henry Mayhew was replaced by Sam Howenstine as Chairman of the Board on January 7, 1889.

It was on the 15th of September, 1884 that the Board considered a problem relating to roads of any kind for the very first time; there was a "Petition of Twenty freeholders" asking (to quote the Minutes of that meeting)

"That the road from Grand Marais to Rove Lake as cut out with exception of where it can be improved by cutting out anew be recognized and made a County road and that money be appropriated from County Revenue Fund to improve said road." was received and on motion of S. F. Howenstine, the same was adopted and Two Hundred and Fifty Dollars appropriated from County Revenue Fund for improvements on it.

W. B. Millar (brother of John M. Millar, the County Auditor?) was appointed road overseer. In any event, the overseer hired a crew of Indians and proceeded with the job quickly. Within three months the work was completed and Millar's bill (for \$250.50) was paid even though he had spent a little too much.

During that autumn season the Board decided for the first time that something would have to be done to assist the North Shore mail carriers: at the October 11th, 1884 meeting they decided—

On motion of Saml. F. Howenstine, Road Commissioner Millar was instructed to hire men to brush out the trail between Grand Portage and Lake County line, the same to be cleared out well enough to allow dog trains to get through with mail . . . this coming winter.

Although a progressive step, this brushing-out was not at all as substantial as the work being undertaken on the "County Road."

But apparently once begun, appropriations for the Rove Lake Road would have to continue on and on. Within six months Road Commissioner Millar was back before the Board requesting an additional hundred dollars "to be spent of the Rove Lake County Road in order to make it passable." The proper motion was passed, the money

appropriated, "to be expended on same at once."

At that meeting, June 1st, a new idea was suggested, one that would become very profitable for the County in the future, even if it did not work out in 1885: send Chairman Mayhew to the State Capital to seek state aid.

Motion presented that the Chariman of the Board wait upon the State Road Commissioner and ask that the State appropriate the sum of \$2,000, to be Expended on the Co. Road already laid out and partially open to Rove Lake from Grand Marais. [By this time, the trail had been in use for nearly a decade; in 1885 the Board was already planning to make it a "road" suitable for heavier traffic.]

After the disappointed Chairman returned to Grand Marais, he reported, at the meeting of July 27, that he had "tried to find the State Commissioners on County road business but I failed to do so, one of them being in Arizona, and the other in Ohio."

During that meeting, when the Chairman had to confess the failure of his mission to St. Paul, he must have been pleased to hear the Overseer's report about his progress: the \$100 appropriation had been spent, and the road "was now passable with horses as far as the 'Devil's Track River.' "

It is evident that Mayhew felt some urgency in pushing the work to enable teams of horses to be used on the road as soon as possible. He called a special meeting for the 24th of October of that year (1885), "to consider the propriety of cutting out the balance of the Road between North Brule River and the path he cut out from Rove Lake south." Mayhew stated there was an uncompleted section "about seven miles which could be made passable for a winter road for about Five Hundred dollars." Perhaps there is little need to add that the appropriation was made and the Overseer instructed "to proceed with the work."

Road Overseer Millar must have been one civil servant who quickly and efficiently followed instructions from his supervisors: he had hired a crew of men from Duluth to supplement his Indian laborers; he reap-

peared before the Board within three weeks, at the meeting of November 9th, reporting that the cutting-out was "now at the 13 mile post." (approximately at Pine Mtn.) And, within one more week, he reported again to them the road was "now cut through to Rove Lake and passable with teams." But, there was a small administrative problem: he had run through his appropriation and needed, as soon as possible, another \$400 for men's wages. There was some urgency about the matter, for the laborers he had hired from Duluth were eager to be "leaving by first boat." The wages were paid promptly, then; and the men were relieved that the mid-November weather had not suddenly closed the shipping season, isolating them in Grand Marais for the long winter.

When Russell Roberts was appointed the new Road Commissioner (often referred to as "Overseer"), he soon discovered that the upgrading of the Rove Lake road was to be his main preoccupation. During the first Board meeting he attended (July 26, 1886), he received directions to repair the County Road as far as the 9-mile post (close to Little Clearwater Lake) "making such repairs as shall be necessary to enable loaded teams to pass."

One of the recurring problems of local government throughout the country, even in recent times, was obvious in early January of 1887; the Board met eight times, on the 1st, 3rd, 4th, 5th, 6th, 7th, 8th and 10th, and was unable to conduct business because of a lack-of-quorum. When one is reading the barely legible Minutes of the Commission, it makes for a humorous interlude in the progress of Cook County government.

Commissioner Roberts lasted less than one year on the job. In late July of 1887, the new Overseer, Ted Wakelin, reported that the recent severe rains had made major reconstruction necessary on the road up the hill from Grand Marais to the 1-mile post.

Finally, by 1888, the constant difficulty, and springtime impossibility, of fording the Devil's Track River was faced by the Board; on June 12th, they called for estimates of the

cost of bridging "the main Devil's Track." And, on the 16th of the month the Overseer was authorized to proceed with construction "on the County Road running North . . . at the old crossing, putting in good abutments with stone filling, and as substantial a structure as can be made."

The great importance of the Rove Lake Road in the opinions of the Commissioners is well illustrated by the fact that throughout this entire period, they did not authorize any important work on road connections with other communities on the North Shore. Although some minor brushing work was done in 1884 and in 1887, it was not until their meeting of October 10, 1891 that they accepted and funded the first contracts for substantial work on the Shore road east and west of Grand Marais.²⁰

One appropriate, final note on "Henry Mayhew's Road" is necessary. In 1899, Newton H. Winchell, the Minnesota State Geologist, finally published his monumental series of six large, outsized, volumes compiling and describing, County by County, the geological formations of the entire state. It was a project to which he had devoted 28 years and which was authorized by the Board of Regents of the University of Minnesota. So far as the Rove Lake Road is concerned, two of the detailed, colored maps in the Cook County sections are of great interest, for they were based on field work done in 1878, 1879, 1886, 1887, and 1897. One large, double-paged map of the County shows the road, prominently labeled "Grand Marais and Rove Lake Road," running north from town, past Pine Mountain, curving to the north and east at the 24-mile post, past Birch Lake (the present West Bearskin) and Clearwater and Daniels and then to the east end of Rove Lake; a "trail" is indicated, to the western end of the lake. This map also shows an unmarked County road extending north from the 24-mile post, and northwest, stopping at the Cross River west of Gunflint Lake; as we will see, that extension of the road had already been in existence for several years before the map was published in 1899. Another good map

in the same series, a "Rove Lake Plate," adds an element of confusion to our attempt to understand; it shows the clearly marked "Grand Marais and Rove Lake Road" going past Daniels directly to the west end of Rove, and not branching off to the east end also!²¹

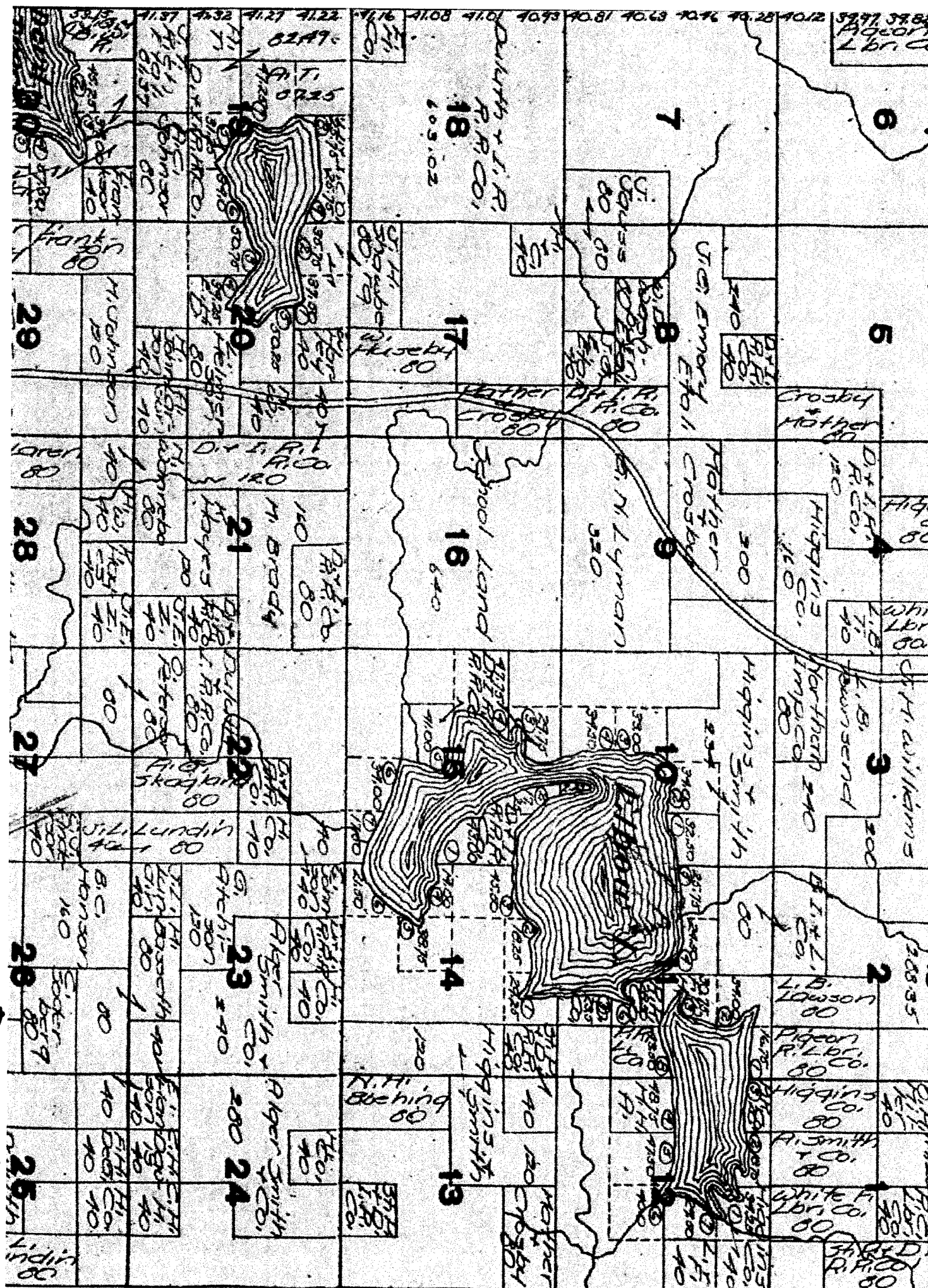
With the cooperation of his fellow

County Commissioners and the taxpayers of Cook County, Chairman Mayhew had positioned himself very well indeed to take rapid advantage of whatever "mineral opportunity" that Lady Luck and a lot of hard work might open up to him in the far north of the County or, indeed, anywhere in the County.

This damaged photo of Tofte was taken in 1908-9. The central feature is the log and cribbed dock built eight or nine years earlier; note the rails and cart in the distance with a load of barrels. Carlton Peak is in the background. The conspicuous white building is Hans Engelsen's Homestead Hotel; the structure on the right housed his store and Post Office. That white home in the distance belonged to the Helge Tofte family. By 1915 this dock had become inadequate; it was replaced by a concrete structure in that year. From the photo collection of Ted Tofte.

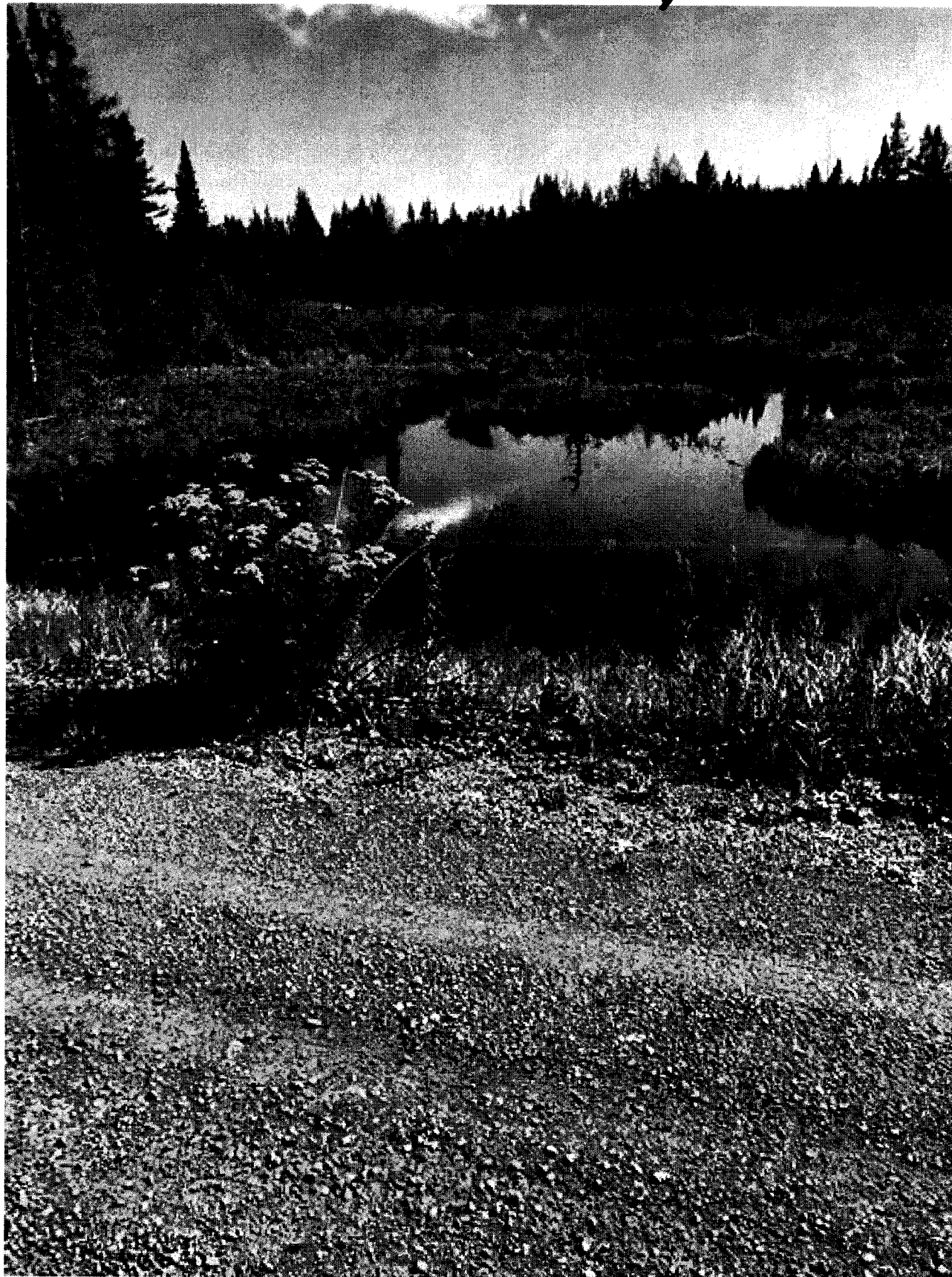


Doc 11 PINE MOUNTAIN ED. Cat. COUNTY NW. 1916 Pat MAP



Doc 11

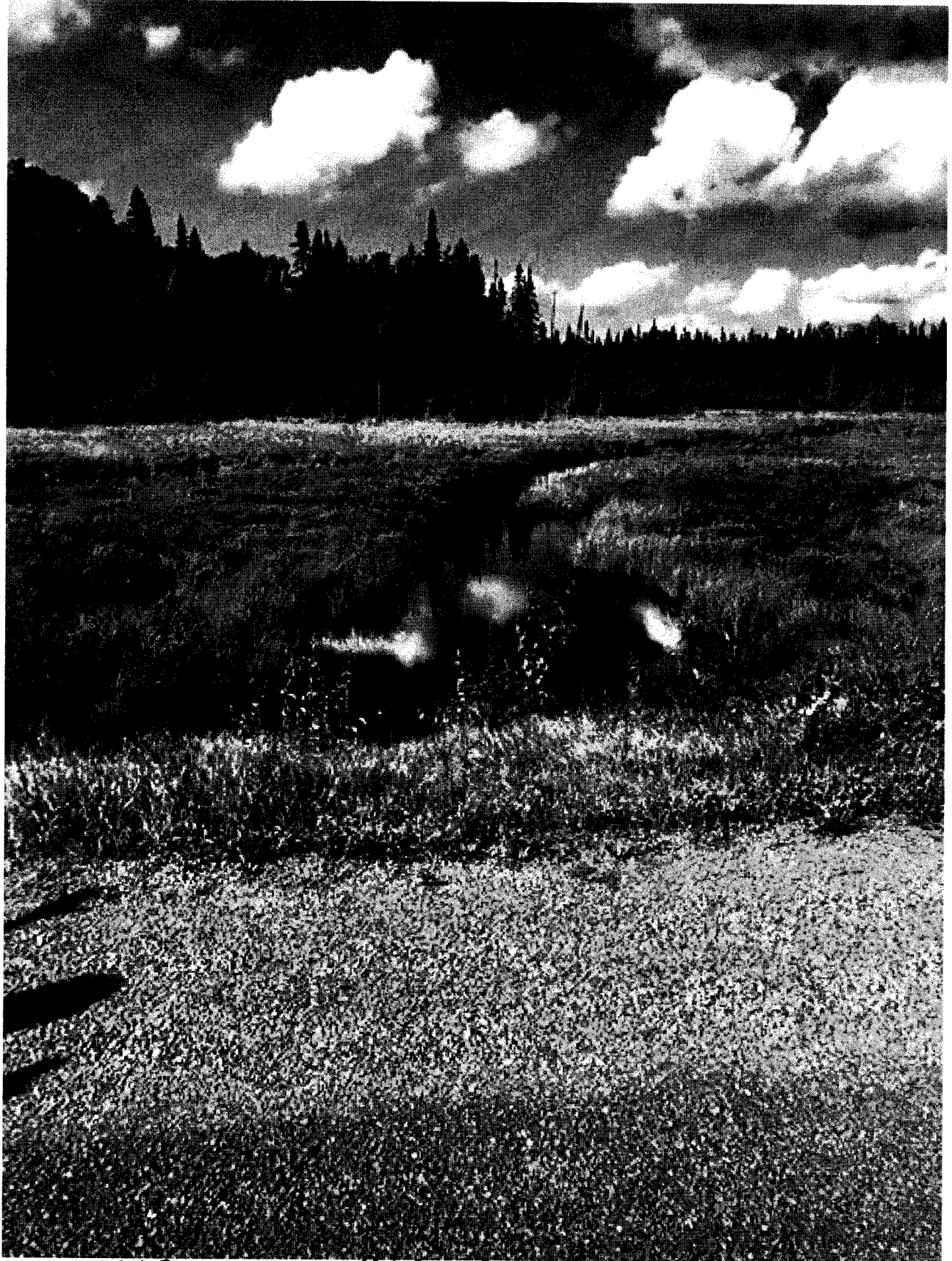
DOC 12



PINE MOUNTAIN ROAD / COOL COUNTY, MN.
Exceptional creek / ELOW /
Almost NO Buffer zone

DOC 12

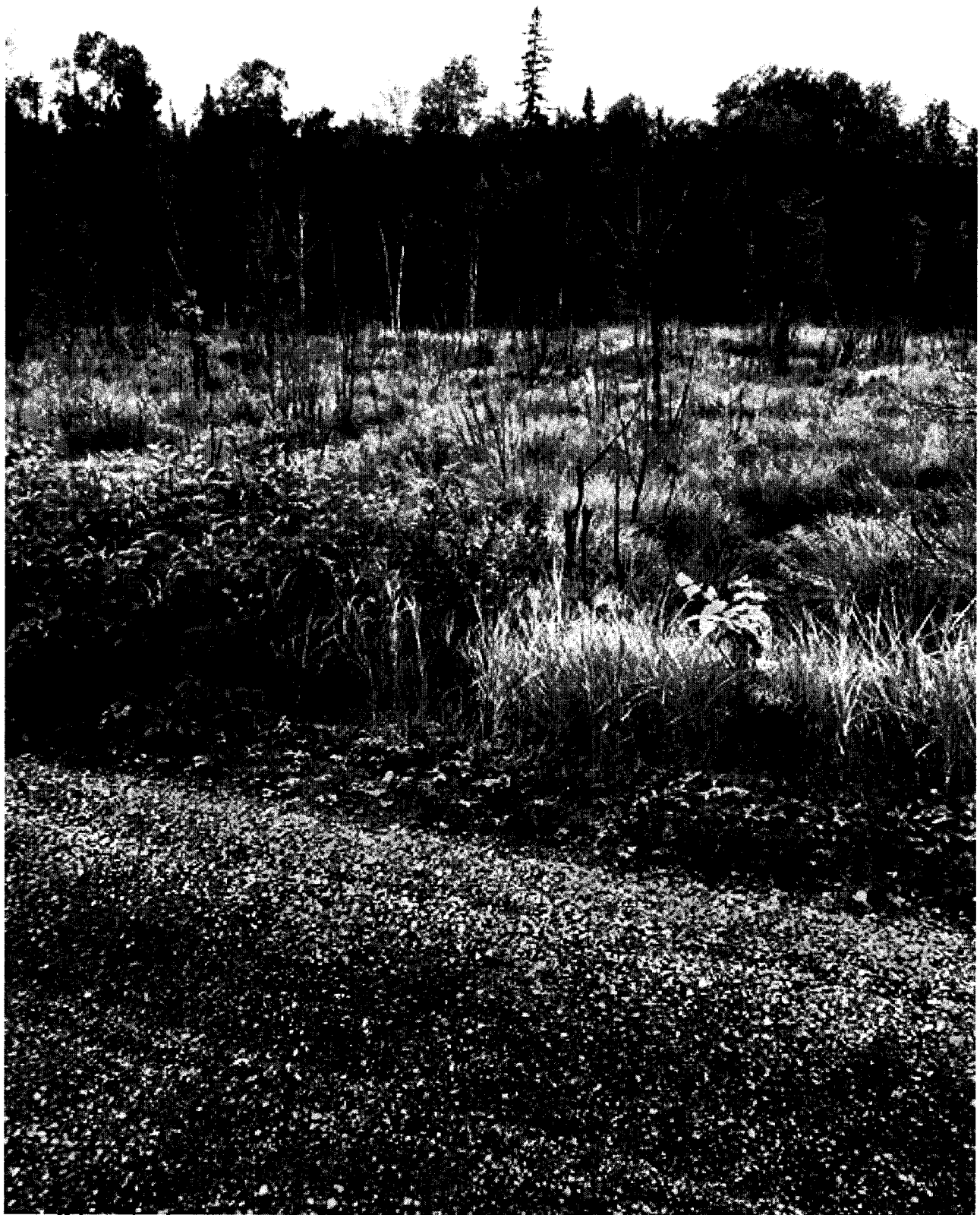
DOC 13



PINE MOUNTAIN ROAD / COOK COUNTY MN.
MUD CREEK - Direct Tributary to Elbow Creek,
Exceptional stream (MPCA ranked) - Minimal
BUFFER ZONE

DOC 13

DOC 14



PINE MOUNTAIN ROAD/COOL COUNTY, MN.
WETLANDS - NO BUFFER ZONE

DOC 14

Lake Superior North Watershed Restoration and Strategy Management Report - 2018 - MPCA

DOC 15

Number of Lakes

1. Is it in the watershed?
2. Is it within the Boundary Waters Canoe Access?
3. Does it have sufficient EQUIS data?

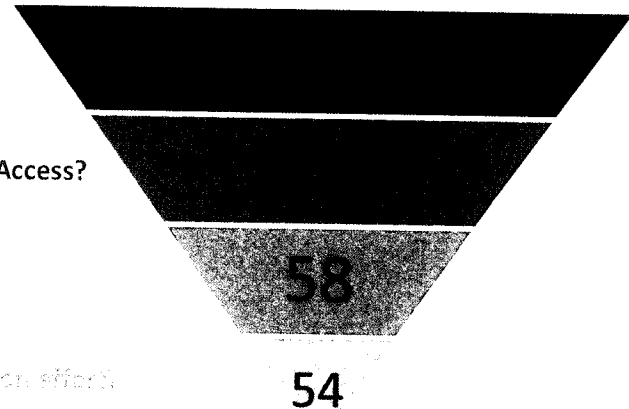


Figure 27. Lake Prioritization Process for the LSN Watershed.

A final check was also conducted to ensure all 54 lakes were mentioned in the Monitoring and Assessment Report for LSN (MPCA 2017). Of the 54 lakes, Johnson Lake was not included in the Monitoring and Assessment Report, but was still included in the final list.

Remaining lakes were then prioritized for protection based on the ranks provided in the statewide prioritization effort and local stakeholder input. Lakes of biological significance (lake trout lakes or designated trout lakes), especially those with phosphorus levels nearing the standard, and lakes with existing and active lake associations were given higher prioritization based on stakeholder input (Table 11). Lake Superior is also identified for protection consideration, as it has experienced some change in trophic status in nearshore areas with increasing levels of attached algae and turbidity. In addition, Lake Superior has been identified by the U.S./Canada International Joint Commission as a demonstration lake and is recognized nationally and internationally as one of world's most important freshwater lakes. Appendix B provides the full list of lakes that were analyzed.

Table 11. At-risk lakes identified for protection

Lake Name	Lake ID	Lake Type	Secchi Depth (m) ^a	Average Total Phosphorus (µg/L) ^a	P Sensitivity Score ^a	% Disturbed ^a	Lake Association ^b	HUC 10
Tom	16001900		3	12.1	22.4	2.6%		401010102
Devil Track	16014300		3	12.1	4.7	1.9%	✓	401010105
Hungry Jack	16022700		5.3	7.8	50.5	2.6%	✓	401010101
Birch	16024700	LT ^c	5.5	8.1	73.2	3.8%		401010101
Deer Yard	16025300		2.9	16.3	31.8	1.2%	✓	401010106
Divide ^d	38025600	T	3.7	15.0	8.9	0.7%		401010110
Poplar	16023900	LT	3.7	9.6	18	2.5%	✓	401010104

DOC 15

DOC 16

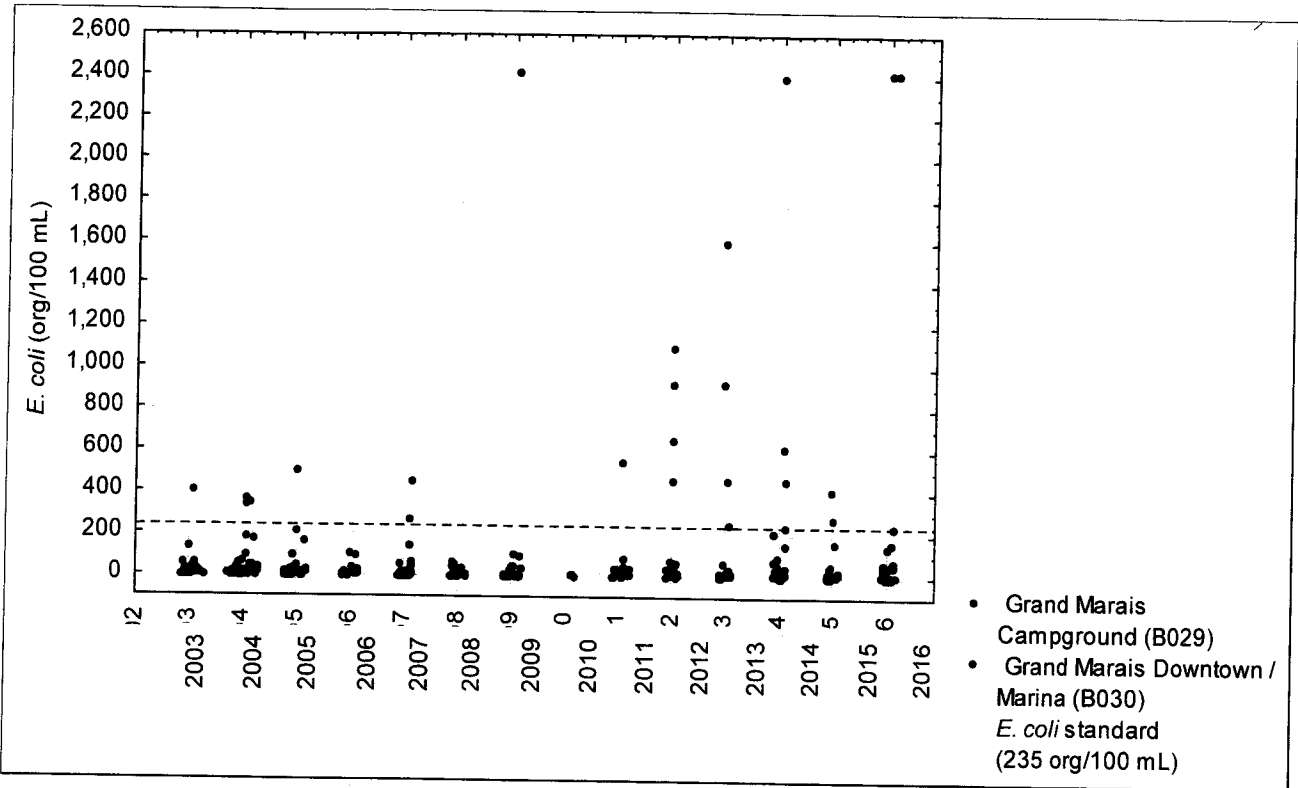


Figure 7. *E. coli* concentrations at Grand Marais beaches.

Due to water quality concerns along the shore of Lake Superior, Cook SWCD began sampling Lake Superior near shore sites in 2014 (Figure 8). Sediment plumes had been observed in the lake at tributary inputs, in addition to increased levels of attached algae. Samples were collected at five sites near Grand Marais. Transparency varied among the sites, with the best (highest) transparency at the most southwestern site (site 204) and the poorest (lowest) transparency at the site closest to the shore (site 212; Figure 9). Phosphorus concentrations varied slightly among the sites, with no clear spatial patterns (Figure 10). TSS concentrations were low—the majority of the samples were below the detection limit, with the remaining samples at or less than 2 mg/L TSS.

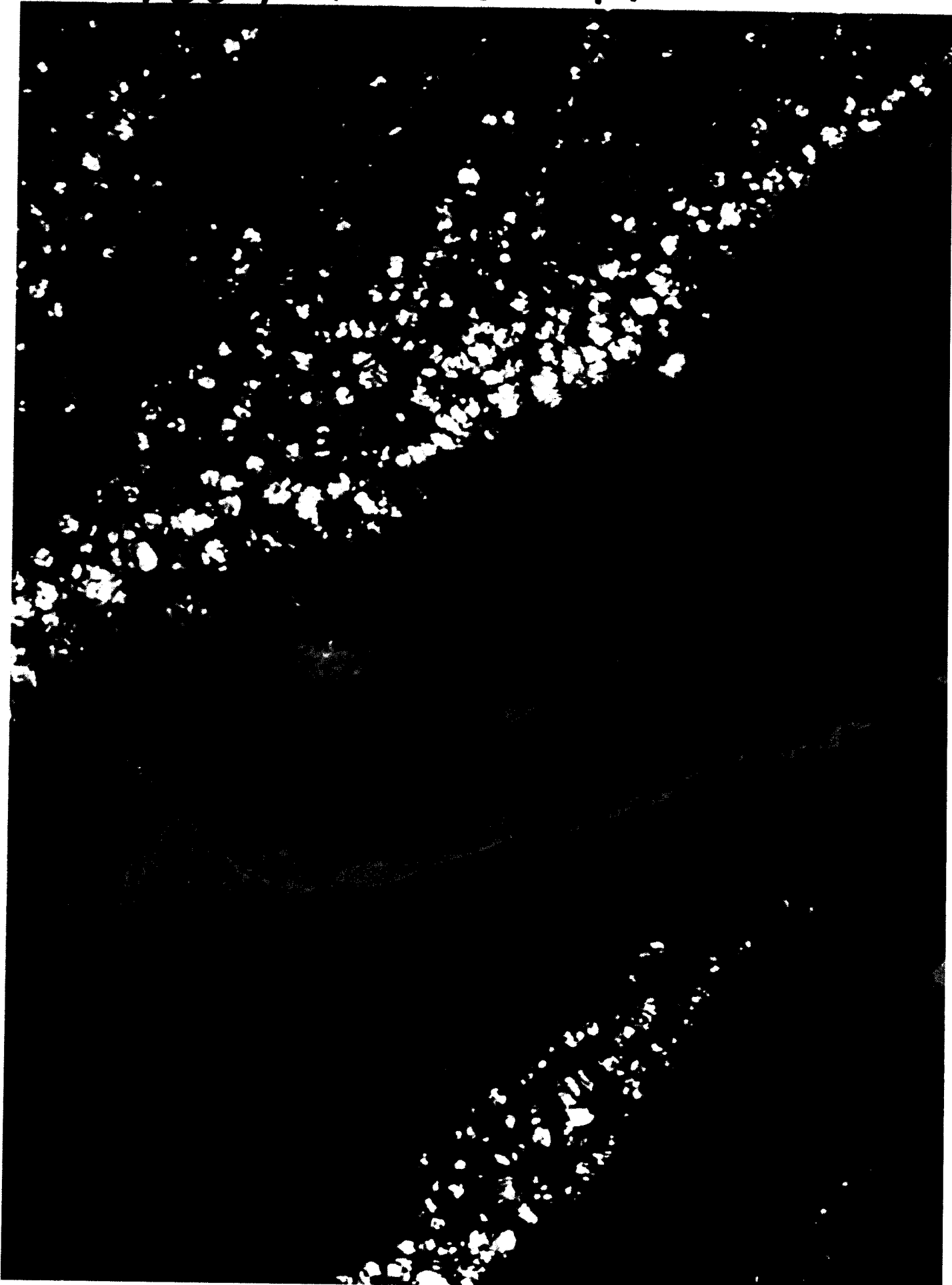
Lake Superior North Watershed
Restoration and Strategy
Management Report
2018
MPCA

DOC 16

Lake Superior DOC 17

202

~~202~~



DOC
17

Doc 17 1 of 2

#

WisCONTEXT

Series: Extreme Precipitation And Wisconsin's Climate

The Outsized Impact Small Streams Have On Lake Superior

Plumes Fed By Minor Tributaries Affect Ecology Of Great Lakes

.Kaley Fech, Great Lakes Echo

Dec. 27, 2018 | Noon

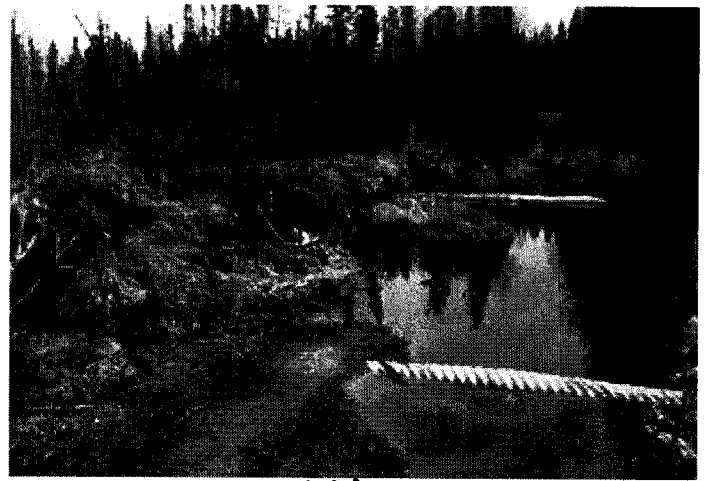
Wisconsin Department of Natural Resources (CC BY-ND 2.0)

Larson Creek, the Flag River and other small tributaries flow into Lake Superior at Port Wing.

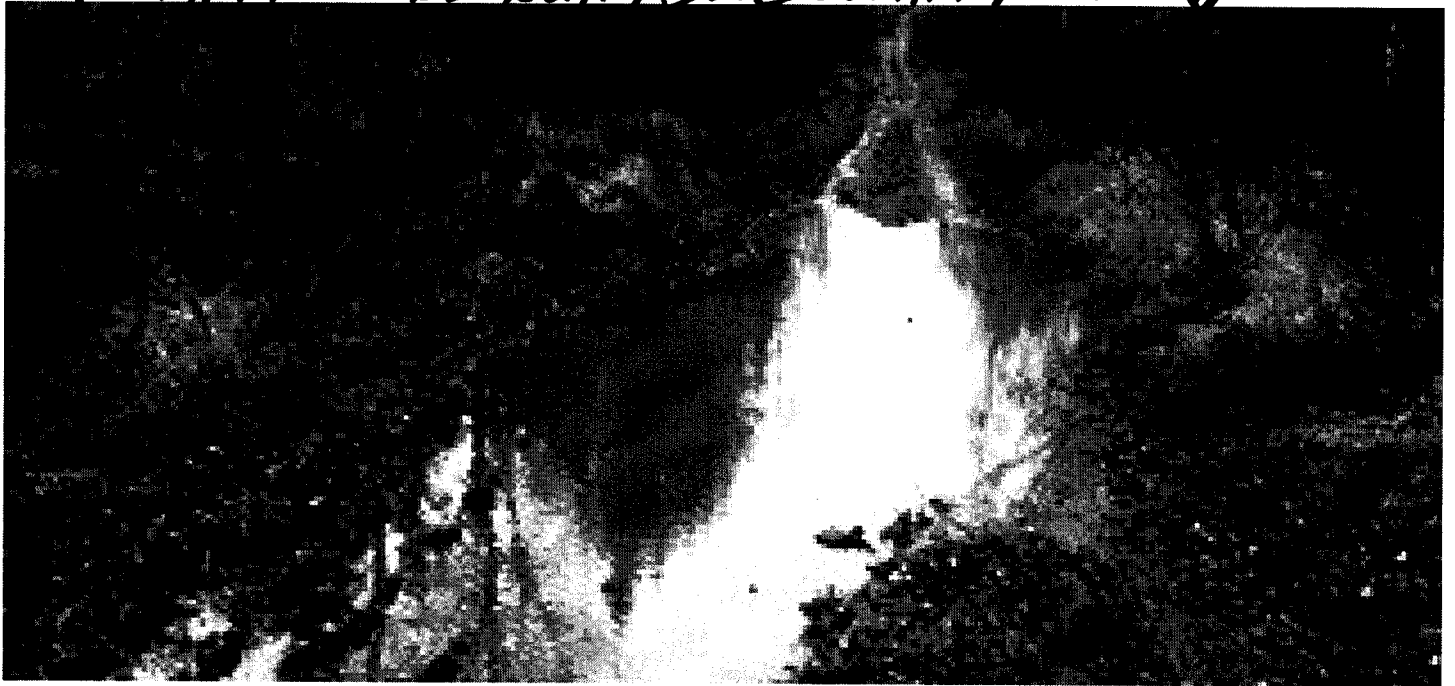
Very little is known about the smallest tributaries that flow into Lake Superior. Several researchers at Michigan Technological University are changing that.

Doc 17

DOC 18



↑ MARK LAKE ROAD, COOK COUNTY MN. ↓



Pine Mountain Rd.



PINE MOUNTAIN RD.

DOC 18

RECEIVED

By: OAH on 7/1/2019 4:55 p.m.

July 1, 2019

Office of Administrative Hearings
Attn: Denise Collins
PO Box 64620
St. Paul, MN 55164-0620

Re: Mandatory Category Rulemaking: Comments to May 31, 2019 Administrative Hearing
(RD-04157)

To Whom It May Concern:

As the solid waste department manager for Burns & McDonnell, I am providing this letter to provide comments regarding the proposed revisions to Minnesota Rules 4410.4300, dated August 29, 2018 and as presented at the May 31, 2019 Administrative Hearing. I appreciate the opportunity to provide comments and opinions on these important issues on behalf of our clients.

Over the past 12 years, the solid waste industry has provided correspondence to the Minnesota Pollution Control Agency (MPCA) Environmental Review Unit and the MPCA Solid Waste Permitting Unit expressing our concerns with previous policy changes in the implementation of the Environmental Quality Review (EQB) Environmental Review Program for municipal solid waste (MSW) landfills by the MPCA as the Responsible Governmental Unit (RGU). We feel the current policies the MPCA is applying places a significant undue economic burden on small and rural publicly owned MSW disposal facilities. The proposed revisions to Minnesota Rules 4410.4300 appear to further enhance the economic burden placed on small MSW disposal facilities that provide necessary and environmentally sound waste disposal services to residents of greater Minnesota. This conclusion is drawn based on the following discussion items relative to the proposed language.

Minnesota Rule Chapter 4410.4300 Mandatory EAW Categories

Minnesota Rule 4410.4300 Subpart 17 Solid Waste proposed language includes solid waste as a Mandatory Environmental Assessment Worksheet (EAW) Category, as indicated in italics below:

(A) For construction of a mixed municipal solid waste land disposal facility for up to 100,000 cubic yards of waste fill per year, the PCA is the RGU.

I agree with this revision as proposed.

(B) For expansion by 25 percent or more of previously permitted capacity of a mixed municipal solid waste land disposal facility for up to 100,000 cubic yards of waste fill per year, the PCA is the RGU.

In this item, we again request to use "previous design" capacity rather than "previously permitted" capacity with the rationale detailed previously.

Thank you for the opportunity to provide comments on the proposed revisions as presented at the May 31, 2019 Administrative Hearing. An efficient environmental review process for MSW landfills is critical so that our solid waste facilities may continue to provide cost-efficient and environmentally responsible waste management services to the residents of Minnesota.

If you have questions or concerns, please contact me at 952-656-3616 or fdoran@burnsmcd.com.

Cordially,



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